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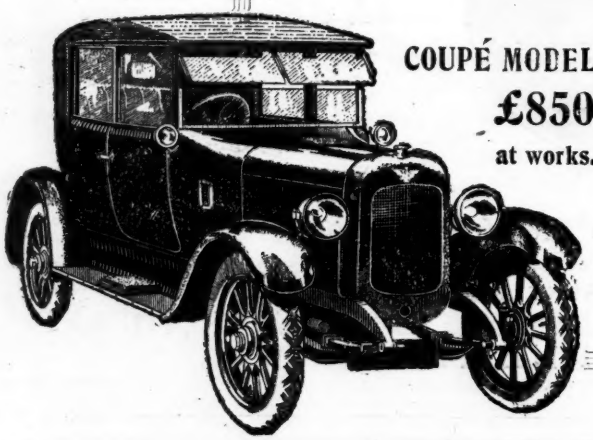

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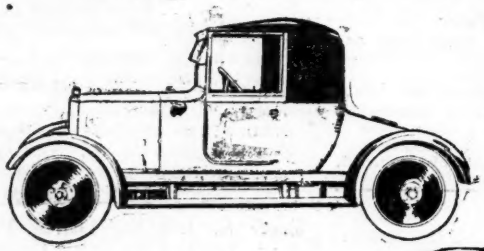

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DISCUSSION ON THE DIAGNOSIS AND TREATMENT OF CYSTITIS.

OPENING PAPERS.

I.—J. F. DOBSON, M.S., F.R.C.S.,

Honorary Surgeon, Leeds General Infirmary.

AMONG chronic disabling disorders, the various conditions which are commonly labelled "cystitis" cause a great deal of misery and suffering. All medical men are familiar with these cases, all surgeons interested in urinary surgery see large numbers of them. We are all familiar with the patient, man or woman, who has undergone treatment for years, who has tried every known and official as well as the unknown and unofficial drugs which from time to time are lauded as specifics; who has had vaccines, usually more than one, sometimes autogenous, sometimes the blunderbuss production of the drug purveyor; who has had bladder washings, catheterizations, soundings, dilatations, etc., without benefit. Surgical operations of the most varied kind have been done; ventrofixation, oöphorectomy, and appendicectomy are chiefly in favour.

What is the reason for the popularity of all of these different methods of treatment? It is this: that many of the infective conditions of the urinary tract designated as cystitis are prone to spontaneous recovery, some are amenable entirely to drug treatment without any accurate diagnosis being made, and so it can easily be understood that many drugs and many methods are from time to time credited with results to which they are not entitled.

Inaccurate and imperfect diagnosis is at the root of the present unsatisfactory position in regard to these cases. They are very numerous, rarely do acute complications bring home to the patient or the practitioner the seriousness of the condition and the need for the most complete investigation. The reason for these difficulties is perhaps to be found in the teaching and upbringing of the medical student in regard to urinary diseases.

In the first place we have to get rid of the idea that we shall at all commonly meet with cases of the following type: the patient who has had repeated attacks of frequency, urgency, and perhaps incontinence, with turbid urine containing pus, etc., and who, after a short course of treatment with drugs, with perhaps vaccines and bladder lavage, recovers completely. We must regard any chronic case presenting symptoms of "cystitis" as a case requiring the closest and most accurate investigation by all the methods at our disposal.

The subject is difficult to approach, as so many and varied conditions may be considered under the label of cystitis. In comparatively few of the cases so labelled is the disease process limited to the bladder or has its origin in the bladder. It is better to drop entirely the term cystitis and to speak of infective conditions of the urinary tract. In this way we should no longer be content to confine our investigations and treatment to the bladder alone.

In investigating these cases it must first be determined as an actual fact that there is an infection of the urinary tract. There are many examples of patients suffering from frequency of micturition and other symptoms which are attributed to cystitis when the urine contains no trace of pus or organisms. Whatever the cause of the symptoms such cases must not be confused with true urinary infections; treatment on different lines is required. One of the first essentials, therefore, is to determine whether organisms are present in the urine.

These cases of what may be called false cystitis are to be attributed in some instances to chemical alterations in the urine; one sees patients who complain of frequency of micturition, but on examination of the urine no abnormality is found except high colour, high specific gravity, and strongly acid reaction, and on microscopic examination epithelial cells and perhaps oxalic acid crystals. They can usually be relieved entirely by taking water in quantities, with alkalies. In other cases we may find that, while there is no infection of the urinary tract, there is, for instance, a calculus in the kidney or ureter, or perhaps a tumour pressing on the bladder. An irreducible hernia may give rise to bladder irritability, particularly if a portion of the bladder is involved in the sac. Numerous other examples might be given.

DIAGNOSIS.

Examination of the urine is the first essential; a preliminary examination of the urine as passed will be the first step. Then a catheter specimen must be obtained. A large proportion of catheter specimens show, on bacteriological examination, evidence of contamination. This is difficult to avoid altogether, but it can generally be done, though rarely by a nurse. It is better for the practitioner to do this himself. If possible the catheter should be handled only with sterile forceps; preliminary washing out of the urethra with sterile water is advantageous, and, in addition to disinfection of the meatus and the surrounding parts, it is advisable, in the female particularly, to pack all around the orifice with sterile gauze before the catheter is inserted. After the catheter is passed the urine is collected into a sterile vessel, and it is better to retain the last portion withdrawn than the first. It is extremely important that the bacteriological examination should be done as soon as possible. A more accurate finding is likely than if there is any delay. In obtaining this specimen we at the same time ascertain whether the patient has a stricture. In addition to the bacteriological investigation, such points as the presence of fragments of tumour, cells, blood, pus, etc., reaction and specific gravity, are, of course, obtained.

Rectal Examination.—Having obtained the result of the bacteriological examination of the urine we are in a position to proceed further with the investigation. The next stage is a rectal examination in the male and a rectal and vaginal examination in the female. In the male the prostate must be examined, and any adenomatous or malignant enlargement will be detected. The presence of a subacute or chronic prostatitis or prostatic abscess will be determined by massage of the prostate and microscopic examination of the fluid expressed. Any enlargement or tenderness of the seminal vesicles will be noted. Growth, fissure, fistula, haemorrhoids, etc., will be excluded. In the female rectal examination will exclude the ordinary rectal diseases. Vaginal and combined examination will detect uterine enlargements and displacements, adnexal enlargements, etc. In addition to the more obvious disorders the presence of a slight degree of cystocele must be particularly noted. The urinary meatus must be examined and the presence or absence of pus in the urethra noted.

Abdominal Examination.—We shall search for distension of the bladder, tenderness on suprapubic pressure, abdominal tumours, tenderness over the appendix, appendix abscess, faecal accumulation, etc. The kidneys will require special examination for prolapse, tenderness, enlargement, etc.

We may now be in a position to make an approximately correct diagnosis. We may, for instance, be able to say: "This patient is suffering from cancer of the rectum invading the bladder"; or perhaps, "This patient is suffering from a uterine fibroid causing bladder retention and cystitis"; or we may find, for instance, that a patient has a cystocele with uterine prolapse, faecal accumulation in the colon, and a prolapsed and tender right kidney; or we may find nothing. The indications for surgical treatment may be sufficiently obvious—for example, for hysterectomy; but it must here be noted that the treatment of a urinary infection associated with a uterine fibroid does not consist merely in removing the fibroid; the urinary infection itself may persist after the operation and require further investigation and treatment. Similarly, it is of little avail to correct a uterine prolapse with cystocele, and to ignore the presence of faecal accumulation, or a prolapsed and infected kidney.

X-Ray Examination.

Having found nothing, or having found some abnormality which does not sufficiently explain the urinary infection, or feeling, as one should feel, that before deciding on the treatment of the accessory factor or factors we should first make as complete an investigation as possible, what should be the next step? An *x*-ray examination of the whole urinary tract to exclude calculus. On one occasion I removed a vesical calculus from an unfortunate patient who had undergone no fewer than five courses of vaccine treatment.

Cystoscopy.

Our next step should be a cystoscopic examination, preceded or not, in the male, by a urethroscopic examination if considered necessary. This is an important, perhaps the most important, part of the investigation. The first step is to ascertain the presence of residual urine. We may find at once on introducing the cystoscope the explanation of the patient's symptoms—calculus, tumour, enlarged prostate, foreign bodies, ulceration of the bladder, tuberculosis, etc. Changes in the ureter orifices will be noted. But we may find nothing in the bladder; ureteral catheterization, collection of urine from both kidneys, its complete examination, including culture, will then be carried out. In certain cases a pyelogram will be necessary to determine the presence of renal pelvic retention. The evidence of definite renal disease being obtained, further investigation into the functional capacity of the kidneys, the amount of blood, urea-nitrogen, etc., will then be necessary.

The examination should not be considered complete until the general condition of the patient has been most completely considered; the presence of pyorrhoea, chronic follicular tonsillitis, middle-ear disease, and other sources of chronic infection must be considered.

But it may be objected: this is a very elaborate, expensive, and trying investigation to carry out on a patient who may be completely cured by a few weeks in bed, by suitable diet, the ingestion of large quantities of water and alkalies, with perhaps urinary antiseptics and sedatives. This is a very reasonable objection, but it may be urged that if the patient is not cured by treatment on these lines it is wiser to carry out the investigation than to ring the changes on other urinary antiseptics or to fly to vaccines.

We have now reached the stage where a complete and accurate diagnosis should be possible and correct treatment can be carried out.

TREATMENT.

There will be many cases in which the urinary infection is so obviously secondary to a definite lesion of the urinary tract or some neighbouring organ that the active treatment of the infective process is secondary in importance to that of the principal disease. We need not here concern ourselves with these cases, merely observing that the importance of supplementary treatment directed to the infection must not be lost sight of.

The Treatment of Acute Infection of the Urinary Tract.

In the majority of these very acute cases, whether due to infection from without or not, any very active surgical treatment is rarely required. As a rule instrumental interference is unwise, and cystoscopic examination should generally be deferred. This particularly applies to those cases of acute infection arising in the kidney and not associated with gross organic disease. Further, in the majority of cases in which acute infection has arisen from without, either in the form of an ascending infection or as a result of instrumentation, the most acute stage of the disease should be allowed to pass before active surgical treatment is begun. We still rely mostly on abundant drinks, alkalies, sedatives, and the various urinary antiseptics.

But there do arise occasionally cases of acute infection most pronounced in the bladder, associated or not with other diseased conditions, in which drainage of the bladder is imperatively necessary.

Sometimes the intensity of the infective process may lead to actual necrosis of the bladder mucosa and perforation and pericystitis may be met with. The urgent need in such cases is for drainage and antiseptic instillations into the bladder. The route usually favoured for drainage in such cases is the perineal unless there are indications to the contrary, it being supposed that better drainage is obtained in this way. It is, by the way, quite futile to attempt to drain such a case as we are considering by the in-dwelling catheter. Perineal drainage is, I am convinced, a mistake and should be abandoned. The perineal wound cannot be kept clean; it encourages a secondary infection of the bladder and is inconvenient for antiseptic treatment of the bladder; further, it is quite doubtful whether it drains the bladder any better than a suprapubic wound. I prefer to treat such a case with a medium-sized suprapubic drain and with bladder instillations of eusol through Carrel tubes. When the acute stage of the disease is passed and the infection has been in part controlled then the investigation of the case may proceed. The suprapubic drain has one disadvantage—it is very difficult sometimes to conduct a satisfactory cystoscopy with catheterization of the ureters until the drainage aperture is almost closed.

The Value of the Urinary Antiseptic.

The control of infection of the urinary tract by the administration of drugs by the mouth has afforded scope for much experimental investigation; it is a peculiarly fascinating subject for study on account of the ability of the kidney to select definite chemical substances from the blood stream and excrete these substances in the urine. We can control infective processes in wounds by the regular instillation of antiseptic solutions over the whole surface of the wound; we should be able to control infective processes in the urinary tract by causing antiseptic substances to appear in the urine and thus come into contact with all parts of the urinary tract. But the conditions are not quite the same: in the first place a wound heals if during the process of healing infective processes are kept under control, and when the wound is healed further infections are not common. We also possess antiseptic substances which we know are capable of controlling most of the wound infections. The urinary tract remains open to reinfection by whatever route, and we do not as yet possess any drug which on oral administration will cause to appear in the urine an antiseptic substance capable with any certainty of controlling any infective process going on in the urinary tract. Also a wound will not heal if there is inefficient drainage, or foreign bodies or dead tissues are present; an infective process in the urinary tract cannot similarly be controlled in the presence of retention, stone, tumour, tubercle, or other accessory cause. As Davis says: "The most enthusiastic advocate of drug therapy could not expect therapeutic results until all the underlying causes of persistent infection have been excluded by accurate diagnosis and eliminated by surgical measures when indicated." No conceivable drug could be expected to cure the cystitis resulting from carcinoma or stone or prostatic retention.

We have therefore to search for the antiseptic substance which when excreted in the urine will prevent infection—for example, when catheterization is necessary—or will control an infection, the accessory causes being first removed. We possess at present a number of drugs which are of some use. Urotropine is the one in most common use. Against its occasional successes are to be placed innumerable failures. It develops formalin in acid urine and undoubtedly has some antiseptic effect; but it has definite limitations; it is inactive unless the urine is acid, and it not infrequently causes haematuria. Salol, boric acid, ammonium benzoate, are also urinary antiseptics in frequent use. According to Keyes urotropine is the only antiseptic of value, and it is chiefly of use as a prophylactic.

Davis says: "The compound ideally accepted for the purpose of internal urinary antisepsis should be chemically stable and relatively non-toxic and non-irritating; it should be antiseptic on high dilution in urine of any reaction, and should be eliminated unchanged in high percentage by the kidney." Clinically there is no such drug known. Davis has carried out a long, elaborate, and most valuable series of experiments on various aniline dyes as urinary antiseptics; his investigations on proflavine and acriflavine are most promising. However, the ideal urinary antiseptic has still to be found.

Bladder Lavage by Catheter.

The first thing to say about bladder lavage is that it is not much use washing out the bladder with weak antiseptics if you at the same time reinfect it. It is clear also that the introduction of antiseptics into the bladder will not have much effect on a renal infection of haematogenous origin, nor will it have much effect on cystitis due to calculus or tuberculosis of the bladder; that is to say, it is no use instituting bladder lavage in any case until one has ascertained all there is to ascertain about the infective process. Bladder lavage is of little avail as a prophylactic—witness the disastrous effects of washing out the bladder in cases of spinal injury. It is chiefly of value as a preliminary to the surgical treatment of enlarged prostate, stricture, tumour, calculus, etc.; here the action is probably largely mechanical—to clear up residual infections which are recovering spontaneously or under medical treatment, and in the after-treatment of cases of urinary infection treated by various operative procedures, such as prostatectomy, removal of bladder tumours, etc. As an auxiliary to renal lavage it is of great value in the treatment of pyelitis and cystitis.

A large number of solutions are in common use; boracic acid and potassium permanganate I believe to be quite useless; mercurial solutions are painful. Silver nitrate I believe to be the best; a weak solution, 1 in 20,000, should first be employed, which may be gradually increased in strength. I employ eusol as an accessory to suprapubic drainage for cystitis, and believe it to be of very great value in controlling the infection in cases of enlarged prostate; I have rarely used it with the catheter, it is too painful.

Vaccine Therapy.

A recently published textbook on surgery (Gask and Wilson) states without equivocation that vaccines are entirely useless in the treatment of cystitis. I am in complete agreement with this statement. During the wave of enthusiasm for vaccine treatment it was quite common to see patients under treatment by vaccines who were suffering from very obvious disorders requiring surgical treatment. The best advice that can be given in this connexion is: if you must have a vaccine, have it prepared by a bacteriologist who is sceptical as to the value of vaccine therapy.

Pyelitis and Cystitis.

In the great majority of cases where no definite primary or accessory organic disease is found to explain the presence of a urinary infection, ureteral catheterization will reveal the presence of bacteria and pus, in greater or less quantity, in the specimens obtained from one or both kidneys. Renal infections of this kind are by some observers regarded as being almost always of haematogenous origin. This is no doubt very frequently the case, but it does not appear to be the invariable rule. Acute infections of this kind generally recover completely on the simplest treatment, fluid and alkalies, but the chronic and relapsing cases are most rebellious to treatment of every kind. Fortunately there is a very definite tendency to spontaneous recovery in time, particularly when the general health of the patient receives adequate attention, and when all possible causes of chronic toxaemia are dealt with.

Renal Lavage.

Of recent years lavage of the pelvis of the kidney for chronic pyelitis and cystitis has been practised with some frequency. The antiseptic in common use is collargol, which is used in 5 to 20 per cent. solution. It is introduced into the pelvis through the ureter catheter under a low pressure and should not cause pain. It has been demonstrated clearly that the collargol permeates the whole kidney, even appearing in the peri-renal fat. With care no harm can be done and in many cases the results are most satisfactory; even after one injection the urine may be cleared of organisms and the symptoms entirely relieved; a second or third injection may be necessary. It is most important that any contributory source of infection, such as a chronic prostatitis, must be attended to, as Kidd has pointed out. We require much more information as to the value of this method of treatment and of the permanence of the results. Unfortunately it appears that recurrence is not uncommon. The discovery of the ideal internal urinary antiseptic would appear to be a more profitable line of research.

REFERENCE.

[1] Davis, E. G.: Urinary Antisepsis, *Journal of Urology*, vol. v, No. 3, p. 215.

II.—ALFRED PARKIN, M.D.Durh., M.R.C.P.Lond., F.R.C.S.Eng.,

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THERE is no branch of his work in which the general physician is more dependent on the help of the specialist than in connexion with genito-urinary cases. For accurate diagnosis the aid of the expert in the use of the cystoscope and ureteral catheter, and of the bacteriologist, is essential. Patients present themselves with pyuria and haematuria, and with symptoms of varying character and severity, associated with the urinary organs. From an examination of the urine by ordinary clinical methods, and from consideration of the symptoms, an opinion may be formed as to the site of the disease and of its nature; but without the help of the exact instrumental methods of examination as employed by the genito-urinary surgeon, and of an accurate bacteriological examination of the urine, a reliable diagnosis cannot be made with certainty. Besides these cases in which the symptoms complained of are directly associated with the urinary organs, other cases come under the notice of the physician on account of more remote symptoms of uraemic origin arising from pyelonephritis secondary to cystitis and pyelitis.

It is not even easy to determine whether an infection is situated in the bladder or the kidney from the symptoms or urine examination without the use of the cystoscope. One has been accustomed to assume that frequency of micturition, with pain at the end of micturition, in a case of pyuria, were diagnostic of disease in the bladder, but it has been shown that these symptoms may exist with pyelitis alone. Primary cystitis is apparently an uncommon disease except as a result of infection of the bladder by the passage of instruments. It is therefore difficult in a discussion on cystitis to avoid reference to diseases of the kidney and prostate, to which cystitis is often secondary.

As a matter of every-day practice one meets with cases in which nephritis is diagnosed because there is albumin in the urine, but in which a more careful examination of the urine shows that the albumin tests are really given by pus present in the urine, and that the case is surgical rather than medical. It is not a difficult matter in such cases to examine a drop of the urine under the microscope, and so recognize pus on the one hand or renal casts on the other, but the neglect of this simple method is, in my experience, not an uncommon source of error. In the female a catheter specimen is, of course, necessary for examination for pus or blood, and even for albumin in a doubtful case. For bacteriological examination, in both sexes, a catheter specimen is desirable; but in the male a reliable specimen may be obtained by having the urine passed in two portions into separate vessels with rejection of the first portion. Conclusions are often drawn from specimens of urine obtained without proper precautions, and are very misleading, especially concerning the *Bacillus coli*.

There are certain cases of chronic nephritis which are apt to be confused with surgical conditions of the bladder and kidney owing to the occurrence of periodic attacks of haematuria. The absence of oedema and of albuminuria between the attacks of bleeding in these cases, which are of the "granular kidney" type, adds to the possibility of error. I have seen such cases cystoscoped and even submitted to operation. Careful examination of the cardio-vascular system, and of the urine for casts, is generally sufficient to clear up the diagnosis. On the other hand, I suspect that there are cases of albuminuria, apart from haematuria or pyuria, treated by physicians as cases of nephritis, in which the albuminuria originates from some surgical condition of the kidney or bladder. In doubtful cases we ought, perhaps, to avail ourselves more freely of the special instrumental methods of examination.

Some acute cases of *Bacillus coli* pyelitis with much blood in the urine resemble acute nephritis closely; but the association of a high temperature and the presence of pus in the urine on microscopic examination serve to make the distinction even without bacteriological examination. The striking response to treatment by potassium citrate in

such cases also helps to differentiate them from cases of nephritis.

Other cases of *Bacillus coli* infection begin with symptoms which are markedly referred to the bladder—frequency and pain, with pyuria, and a little blood at the end of micturition. These cases one has been accustomed to regard as being essentially bladder cases, but it may be that the infection is primarily in the kidney. For precise information on this point we are dependent on examination by the genito-urinary specialist. The *Bacillus coli* infections of young children, often with great constitutional disturbance, are frequently missed for want of an examination of the urine for pus. The difficulty of obtaining the urine is often allowed to stand in the way, but can easily be overcome if the importance of having a specimen is realized.

As regards the treatment of *Bacillus coli* infections, this is generally most satisfactory in the acute stages, for the acute symptoms and temperature readily subside when the urine is rendered alkaline. But in some cases the pyuria persists, and it is in these cases that the treatment becomes difficult. In the course of the discussion one hopes to hear considered the indications for vaccine treatment, and for direct surgical treatment such as lavage of the pelvis of the kidney.

The exact mode of infection of the urinary tract by the *Bacillus coli* is still the subject of controversy. Some hold that the infection is an ascending one by way of the urethra to the bladder, and the more frequent occurrence of the disease in female infants is mentioned in support of this view. Others favour the direct transmission of the infection to the urinary tract from the neighbouring colon. In spite of the attractive simplicity of these theories it seems to me that bacterial infection of the kidney through the blood stream is the more scientific explanation.

Cystitis is of frequent occurrence as a complication in cases of spinal paralysis following acute myelitis, tuberculous spine, locomotor ataxia, and other diseases of the spinal cord. It appears to be a direct result of catheterization for retention of urine, and ordinary precautions as to asepsis fail to prevent its development. Routine methods of washing out the bladder with boric lotion are not very effective in curing the cystitis, and we seem in need of further guidance in dealing with such cases. The discovery of the tubercle bacillus in the urine of certain cases of cystitis carries the diagnosis a step forward, but cystoscopic examination and catheterization of the ureters are necessary for the accurate localization of the disease.

In the diagnosis of cystitis the part played by the ordinary medical clinical methods is therefore limited. The physician can recognize the presence of haematuria and pyuria, and by attention to the history of pain and other symptoms he can separate the surgical cases from the purely medical cases of nephritis. By careful examination of the urine as to its reaction, the amount of blood or pus, and their state of admixture with the urine, he may form a fairly reliable opinion as to the seat and nature of the disease. The discovery of a palpable mass in the kidney, prostate, or epididymis, may further guide him as to diagnosis. But after all these methods have been exhausted, he will be wise to avail himself of the assistance of the bacteriologist, of the radiologist, and of the surgeon skilled in the use of the cystoscope.

DISCUSSION.

Mr. J. Swift Joly (Senior Assistant Surgeon, St. Peter's Hospital, and Surgeon, London Lock Hospital) pointed out that formerly urologists were content to speak of tuberculous infections of the genito-urinary tract under the heading of the organ which gave rise to the most obvious symptoms, and the terms "tuberculous disease of the kidney," "tuberculous cystitis," etc., were in common use. Recently these infections were considered as a whole, irrespective of the extent of the infection or the number of organs involved, and the terms "urinary tuberculosis" and "genital tuberculosis" were almost universally substituted for the older nomenclature. He thought that non-tuberculous infections of the urinary tract should be treated in a similar manner, and the use of the terms "cystitis" and "pyelitis" should be restricted, as (especially in the case of the bladder) it was very seldom that one organ alone was involved. He distinguished two types of urinary infection, the ascending and the descending. The former was frequently met with in cases of urinary obstruction, stricture, enlargement of the prostate, etc., and in cases of spinal disease; but apart from these conditions it was comparatively rare. The descending or haematogenous infection, on the other hand, was very common. This, of course, presupposed some other source of infection in the economy, which should be dealt with first, as it was obvious that it would be impossible to cure the urinary infection if the prime source from which the micro-organisms were derived was left untouched. In ascending infections the most common site of infection was the prostate, but in obstruction the infection might reach the kidneys, and this renal infection might persist long after the obstruction had been dealt with. This condition had frequently been observed in cases of enlargement of the prostate. If the symptoms of cystitis persisted for a considerable time after removal of the gland, the infection was almost always renal. Therefore it appeared that the treatment of chronic cystitis, apart from cases where the bladder was infected by a dirty instrument, resolved itself into the treatment of a renal infection. There were four methods of dealing with these renal infections—urinary antiseptics, lavage of the renal pelvis, vaccines, and forced fluids.

Urinary antiseptics gave results which, as a rule, were disappointing, except in the more acute cases. Hexamine was most useful when used as a prophylactic against infection, but once the infection had become established it did not seem to be sufficiently powerful to kill the organisms.

Lavage of the renal pelvis, when first introduced, would, it was thought, provide a therapeutic agent that would rob renal infection of all its terrors, but, in the speaker's hands at all events, it had proved very disappointing. It was possible to diminish the intensity of the infection by this means, but, although the patient's condition might improve and the pus in his urine become almost infinitesimal, a "bacteriological" cure was never effected, and the old condition of infection returned soon after the treatment had been stopped.

Vaccine treatment also gave disappointing results. This might be due to the fact that many of the so-called *Bacillus coli* infections were really due to some other organism—a streptococcus or staphylococcus—and that the *B. coli* was really only a secondary infection. However, it might grow so luxuriantly that it killed off the primary organism when cultures were made from the urine. Until more attention had been given to this point, it was useless to hope for good results from this line of treatment.

Forced fluids had, he thought, proved one of the most efficacious methods of dealing with a renal infection. The patient should be encouraged to drink as much as possible, and a diuresis of at least 100 oz. of urine a day should be maintained until the urine was clear. The amount of fluid might then be diminished gradually. This treatment, of course, had obvious limitations, as, for example, in cases of parenchymatous nephritis, or of unrelieved urinary obstruction.

Mr. Andrew Fullerton, C.B., C.M.G. (Lecturer on Surgery, Queen's University, Belfast), said that in the out-patient department of a general hospital the number of cases of cystitis was so great that expert examination by a urologist of all cases was impossible. It was, however, fortunate that the large majority of these cases were cured by bladder lavage. Those that did not respond to this form of treatment could be subjected to expert examination by cystoscopy, ureteral catheterization, etc. An important point to determine was whether the cystitis was a primary condition or whether the kidney was infected. The latter condition was found to be more frequent than was formerly suspected. The analogy with tubercle of the bladder was obvious. Surgeons did not now speak of tuberculous "cystitis" because tubercle of the bladder was almost invariably secondary to a renal lesion. He had been greatly disappointed with the results of vaccines and urinary antiseptics. In acute cases instrumentation was not advisable. In more chronic cases excellent results were obtained by washing out the bladder with potassium permanganate, mercury oxycyanide, or silver nitrate. The last was, in his opinion, the best agent, especially when the more acute symptoms had passed off.

Mr. H. N. Fletcher (Assistant Surgeon, Sussex County Hospital, Brighton) said that in a discussion on cystitis considered from the point of view of the general practitioner it was of prime importance to define exactly what the general practitioner should do when confronted with a case of urinary infection. He was very doubtful whether the first step should be, as the previous speaker had suggested, to adopt bladder lavage. One of the first steps taken should be to obtain a catheter specimen. This would decide at the same time whether a stricture were present or not. In his opinion, vaccines (and especially *B. coli* vaccines) were generally administered in too strong doses.

Mr. Kenneth Walker (Surgeon, Miller General Hospital, London) heartily agreed that the term cystitis was misleading, and that the analogy with tuberculous infections of the urinary tract was very close. Surgeons had come to realize how frequently the renal pelvis was affected in these cases, but he doubted whether due recognition had been accorded to the prostate as a source of trouble. Many cases of recurrent infection of the urinary tract were due to a persistent focus in the prostate. For this reason one of the most vital points in the examination of the patient was an investigation of the prostate. Not only must it be palpated from the rectum, but it must be massaged, and a careful examination of the prostatic fluid made for the presence of organisms and pus cells. The route along which infection of the urinary tract took place was a matter of great interest. Much discussion had centred around the question whether the infection was descending, ascending, or direct from the bowel. In his opinion all three methods of infection were possible, although a descending infection from the blood stream was probably the commonest. He had come across an extremely interesting example of direct infection from the bowel while working with animals. In order to anaesthetize a rabbit he had employed a rectal injection of urethane. The rabbit developed severe colitis and proctitis owing to the urethane having been given in too concentrated solution, and was consequently killed twenty-four hours after the anaesthetic. Sections of the bladder revealed the presence of enormous numbers of coliform bacilli in its walls. Infection had apparently taken place directly from the bowel and along the lymphatic channels. There was one point in connexion with pelvic lavage that deserved special emphasis. Mr. Dobson had mentioned the fact that collargol was frequently found in the perinephric fat after it had been used for renal lavage, and had rather implied that this was a normal event, and one that need not excite anxiety. He (Mr. Kenneth Walker) wished to say most emphatically that such a phenomenon was an abnormal and dangerous event. The investigations carried out by Eisendrath and others at the time that collargol first came into use for pyelography had conclusively shown that when injected above a certain pressure collargol burst through the renal pelvis and travelled along the intertubular planes. It might even invade the capillary walls and be carried away in the blood stream to form small collargol infarcts in the liver, lungs, or spleen. For this reason collargol must be injected with great care and the gravity method employed rather than the syringe. Renal lavage was a valuable method of treatment, but unless carried out with great gentleness it might result in more harm than good.

Mr. F. K. Smith (Surgeon, Royal Infirmary, Aberdeen) divided cases of cystitis into two classes—acute and chronic; the great majority of cases began acutely. If the general practitioner were consulted, it was found that many cases of acute cystitis got quite well and did not recur, under ordinary general treatment—such as rest in bed, purgatives, alkalis, diuretics, colon lavage, and even morphine or nepenthe. Those cases that did not recover completely in a reasonable time—say two to three weeks—ought then to be completely investigated, not only by special urological methods, but also by a complete general examination. Teeth, tonsils, gall bladder, pelvic organs, appendix, colon, and rectum, should all be passed under review. Urinary infections were often secondary; in fact they might be said to be always secondary, whether the infection were haematogenous by the lymphatics or by contiguity. Very often treatment of the primary focus, even when outside the urinary tract, was sufficient to bring about a cure. In chronic cases antiseptics and vaccines had a slight amount of value.

Mr. Sydney MacDonald (Surgeon, Genito-Urinary Department, West London Hospital) said that the point of view of the specialist was so different from that of the general practitioner that it was difficult for him to approach cystitis from the latter's standpoint. There was so much tendency for general practitioners to look upon what the specialist regarded as a symptom, as a disease—for example, the terms cystitis, haematuria, albuminuria, covered a multitude of sins, and there was a tendency to accept albuminuria as a diagnosis. By proceeding no further in investigation pyuria might be missed, as happened in the case of a boy who had recently come under his care with advanced urinary tuberculosis. The outlook of the various speakers had shown a great advance in the attitude towards urinary infections. Formerly discussions had centred round the question whether infections were ascending or descending infections; now the idea of haemic infection from some intestinal focus was generally accepted. He considered that Mr. Dobson's statements with regard to vaccines were too sweeping. The types of case in which vaccines were of assistance were (1) cases starting acutely and afterwards "hanging fire"; (2) cases of persistent bacilluria or chronic *coli* infections suffering from frequent exacerbations. Mr. Joly had gone into the subject of primary and secondary infections, but further intestinal investigations were needed. Possibly the *Bacillus coli* was only at fault accidentally. It might be that some other organism was producing the intestinal fault and thus allowing migration of the *B. coli*. It was along such lines as these that future work should be directed. Possibly we should soon be treating infections with *B. coli* with, say, streptococcal vaccines. The failure of urinary antiseptics emphasized by several speakers was due to the fact that ordinary doses were too small and that none was given at night. A large nightcap dose should be given in addition to the daily dosage. Lavage of the renal pelvis had in his hands shown disappointing results. Statistics on this score were misleading: if *all* cases were subjected to this method of treatment the percentage of cures would be high; if only the cases that "hang fire" had the kidney pelvis washed the percentage of cures would be small—in fact, it was doubtful whether a "bacteriological" cure was ever attained.

Mr. Angus Martin (North Shields) laid stress on the importance of carrying out a systematic examination of all organs and of eliminating such a focus of infection as a chronic appendix or a loaded colon. He cited a case of acute cystitis in which a very tender appendix was discovered. Appendicectomy was performed, and within a week the acute cystitis cleared up. Many a case of cystitis treated by vaccines had not improved until lavage had been carried out. No instrumention of urethra or bladder should be carried out without a preliminary washing out of either the urethra or bladder, or both.

The President of the Section (Mr. Thomson Walker), in closing the discussion, said that he would only deal with a few of the important points that had been raised. Complete examination of the patient was the basis on which all successful treatment must be founded. In the background of a large proportion of cases of urinary infection there was a primary focus of infection that remained untouched by treatment of the urinary tract. Investigation would show such conditions as chronic colitis, intestinal stasis, piles, or appendicitis, which might be sources of reinfection, and must be dealt with before the urinary infection could be cured. The interaction of different bacteria that had been mentioned was, he believed, a matter of great importance. An infection of the urinary tract by *B. coli* might flare up when the patient had an attack of streptococcal tonsillitis. The differentiation between medical and surgical affections of the urinary tract as a preliminary to treatment was one amongst the important points that had been raised. Cases of pyuria and haematuria were still being treated by physicians under the diagnosis of albuminuria, and with the idea that these symptoms were diseases. On the other hand, haemoglobinuria had sometimes led the careless surgeon to perform nephrotomy. It might be taken as a rule that all

cases of persistent and recurrent cystitis were secondary, and search must be made for prostatitis, diverticulum of the bladder, bladder growths, or for pyelitis, by rectal examination, cystoscopy, and catheterization of the ureters. The point raised by Mr. Kenneth Walker as to direct infection of the urinary tract through the lymphatics of the wall was important. He had long believed that such direct infection might take place from the duodenum or colon to the renal pelvis, from an appendix to the ureter, and from the rectum to the bladder or prostate. Urinary antiseptics carefully used gave good results in some cases, but not in all. Frequently the failure was due to some such cause as obstruction or calculus keeping up infection in spite of any bactericidal remedy. In chronic cases a short intensive course of urotropine, repeated at intervals, would do more good than prolonged administration of small quantities. He believed that urinary antiseptics should be widely used as a prophylactic agent before all operations on the pelvic organs, and before all bowel operations. They should be avoided altogether in acute inflammations of the urinary tract, and reserved for the subacute and chronic infections. Renal lavage in pyelitis had now been practised by urologists for many years; he had used the method widely, and had obtained some good results and met with some failures. The results must be checked by the bacteriologist. Cases in which the symptoms had temporarily disappeared were not cures, although they were sometimes claimed as such. No case was cured which did not show a sterile urine for some weeks after the treatment had finished. A distinction must be made between renal lavage and the instillation of antiseptics, such as collargol, by force into the kidney substance. The latter method had been proved to cause necrosis of the tubules, and in some cases even death of the patient. A method that he had sometimes used had not been mentioned—namely, nephrotomy in conjunction with continuous irrigation of the renal pelvis. The kidney was exposed and stitched in position, and two small rubber tubes passed through a single or sometimes a double nephrotomy wound into the pelvis. Continuous irrigation was kept up with short intervals for from six to ten days. Then the tubes were removed, and the "kidney" wound allowed to heal. There was some danger of a urinary fistula that might heal only with difficulty, and it was possible for a staphylococcus infection to track alongside the tubes and replace the *Bacillus coli* infection of the pelvis.

BLADDER GROWTHS AND THEIR TREATMENT.

BY

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FROM the clinical point of view growths of the bladder can be divided into: 1. Benign (papillomata). 2. Malignant (carcinomata). 3. Those of doubtful nature. As a general rule differentiation with the cystoscope between benign and malignant growths is not difficult: the innocent papilloma being a more or less pedunculated growth with long villous processes; the carcinoma, on the other hand, begins as a bald sessile growth, or as an ulcer having the characteristics of malignant ulcers elsewhere. The growths I have labelled "those of doubtful nature" are villous in type, but the villi are short stunted and more fleshy and the base broad. I would also include in this category papillomata in patients over fifty years of age.

Papillomata.

The treatment of choice is "diathermy" applied through the cystoscope. Excision of papillomata by suprapubic operation is followed by recurrence in a very large percentage of cases, sometimes with alarming rapidity and in a widespread manner. The commonest site of the first recurrence is in the scar of the original growth and in the suprapubic scar in the bladder, small papilloma buds or papilloma cells possibly being implanted in these wounds at the time of operation. Diathermy at once eliminates this factor and diminishes the percentage of recurrences: also if the patient is kept under cystoscopic observation for several years afterwards any recurrences can be dealt with at once when they are quite small and before they have produced any symptoms. This early destruction of recurrences also diminishes the danger of "contact growths." Unfortunately diathermy has serious limitations; growths low down, in relation with the internal meatus, are mechanically impossible to reach, and when the growths are multiple, apart from the fact that almost certainly some will be inaccessible with the cystoscope, often it is impossible to keep pace with them, growth taking place faster than destruction. Multiple papillomata are, in my opinion, best left alone as long as they remain benign and are not producing serious symptoms. The main symptoms which call for operation are repeated haemorrhages, retention of urine, secondary malignancy, and secondary infection. *X*-ray treatment has its uses; it may, for a time, give considerable relief from haemorrhage and frequency of micturition, though it appears to have no influence on the actual growth. After operation for multiple papillomata a prophylactic application is advisable.

In my opinion, when operation becomes necessary, the best means of dealing with multiple growths is to open the bladder widely, to excise pedunculated growths by transfixion, after dissecting up a cuff of mucous membrane, and, while the bladder is open, to destroy the sessile growths by a powerful diathermy apparatus. If any portion has become malignant and is deemed operable, a portion of the whole thickness of the bladder wall must be widely excised, if necessary with transplantation of the ureter. The operation is carried out in the Trendelenburg position. A single papilloma in a patient over 45 to 50 years of age should be subjected to operation rather than diathermy, as it is not possible to tell with the cystoscope whether any given papilloma is benign or malignant. This fact has been impressed upon me by two cases which I briefly relate.

CASE I.

A woman, aged 75, had a single papilloma growing in the usual relation with the left ureter. There was nothing to suggest malignancy from its appearance, nor could anything abnormal be detected on vaginal examination. After the second treatment with diathermy the papilloma was thought to be completely destroyed, but the patient failed to report for cystoscopy until two and a half months later; there had been further haematuria, and the cystoscope now showed, at the site of the original papilloma, an ulcerated nodular growth, and vaginal examination revealed extensive infiltration, rendering excision impossible.

CASE II.

A man, aged 60, presented a single papillomatous type of growth in relation with the left ureteric orifice. Being in doubt as to the nature of the growth, I opened the bladder suprapubically. The growth and mucous membrane were found to slide over the muscular coats—that is to say, there was no muscular infiltration; a mucous membrane cuff was dissected up and the growth transfixed and removed. Microscopical examination showed the growth to be benign. Being on military service I did not see this patient again for three years, when he reappeared with haematuria; cystoscopy now revealed a similar growth at the site of the original one. Acting on the result of the previous microscopical examination, I elected to deal with this recurrence by diathermy through the cystoscope. On examining two weeks after the second application I found no papillomatous tissue remaining, but its place had been taken by a typical malignant ulcer. I accordingly opened the bladder and excised the ulcer, with a wide margin, through the whole thickness of bladder wall, including the ureteric opening, and transplanted the ureter. Microscopical examination confirmed the diagnosis of carcinoma, and up to date (nine months) there has been no recurrence.

Whether in these two cases the papillomata were malignant from the beginning, or whether diathermy had any influence in making them become so, is a moot point, but certainly to my mind it raises the question whether diathermy is advisable in patients over a certain age.

Carcinomata.

In early cases the prognosis is good, but unfortunately about 50 per cent. of cases are inoperable when they reach the surgeon. I would like once more to impress upon the general practitioner the utmost importance of at once referring all cases of haematuria to a urologist for cystoscopy. Similarly all cases of cystitis which do not readily yield to treatment should be subjected to cystoscopy; for it must be remembered that a large number of cases of carcinoma of the bladder supervene upon chronic cystitis, which must be looked upon therefore as a precancerous condition. I have already stated that most cases are readily recognized with the cystoscope; all bald growths and all ulcerated growths are malignant; other points favouring malignancy are puckering of the mucous

membrane round the growth, showing infiltration and contraction, the presence of outlying nodules in close relation to the original growth, and also the presence of infiltration of the bladder wall, or involvement of glands felt from the rectum. In villous growths the more sessile the growth and the shorter the villi the more likely is the growth to be malignant. In giving a prognosis after cystoscopy it must be remembered that it is the intravesical portion of the growth only that is visible, spread takes place by way of the lymphatics in the muscular coats, and it may be found on exploring the bladder that the growth has infiltrated the muscular layers to an unexpected extent. It is impossible therefore to give an absolute prognosis until the bladder has been explored, but the cystoscope may veto exploration. The aim of operation will be to resect the whole thickness of bladder wall containing the growth with as wide a margin of healthy tissue as possible. When the growth involves the upper zone of the bladder, which is covered with peritoneum, the peritoneum should be opened first to make sure there is no adherent gut or omentum, the peritoneum covering the portion of bladder to be resected is outlined with the knife, and the peritoneal cavity closed before the bladder is opened. Where the growth springs from the base of the bladder the bladder wall is split from the suprapubic opening down to the growth, and the latter surrounded, including a margin—when possible an inch—of healthy bladder wall. If this cannot be accomplished without encroaching upon the ureteric orifice, the latter must be included and the ureter transplanted; the operation is facilitated if the ureter can be catheterized before the bladder is opened. These operations are done with the patient in the Trendelenburg position, and the best exposure is obtained by use of Mr. Thomson Walker's self-retaining retractor. I regret that time has not permitted me to collect my hospital statistics for this paper, but I have private notes of 11 cases operated upon for carcinoma. The patients varied in age from 40 to 74. In 6 cases the position of the growth necessitated transplantation of the ureter; 1 patient died from pulmonary embolus three weeks after operation; 2 have since succumbed to their disease (within twelve months of operation), one with secondary deposits in the spine, the other with extensive local recurrence. In 2 further cases local recurrence was discovered with the cystoscope six months after operation; these recurrences were subjected to secondary operation, so far successfully. The remaining 6 are in good health and have had no local recurrence one to five years after operation.

Growths of Doubtful Nature.

I have sufficiently indicated already the types of growth that come under this category. I have notes of 13 cases up to date in which the diagnosis after cystoscopy remained in doubt. All were submitted to partial cystectomy by suprapubic operation; in 7 cases this necessitated transplantation of the ureter. Subsequent microscopy reported 8 malignant, 5 benign; the age incidence varied from 30 to 74—both the latter were malignant—but 9 of the cases were between 50 and 60 years of age. Of the 5 benign, in 1 the microscopic diagnosis was at variance with the subsequent history, for this patient within a few months developed extensive and rapid malignant disease of the bladder, which fungated through the suprapubic wound. Of the other 4 "benign," 1 (operation 1917) has had several small recurrent papillomata dealt with by diathermy; in 2 a year has not yet elapsed since operation, and from the last I have not had news since the microscopical examination.

OPEN PROSTATECTOMY.

BY

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THE operation of suprapubic prostatectomy as generally practised to-day is a blind operation. The prostate is enucleated by the sense of touch—through a small suprapubic incision, bleeding is controlled by irrigation or by packing with gauze, and the rough irregular edges and surfaces left by the enucleation are allowed to slough and granulate. In spite of these disadvantages the operation has been successful, and has entirely superseded the perineal method.

Certain complications and sequelae occur, however, in connexion with suprapubic prostatectomy that raise the question whether some improvement cannot be made which will bring the operation more into line with other modern surgical procedures.

These complications and sequelae are (1) haemorrhage, (2) post-operative infection, (3) post-operative obstruction.

Haemorrhage is a complication so variable in degree and in the effect on the patient that it is difficult to discuss. It has a considerable influence, partly direct and partly indirect, on the mortality of the operation. The number of deaths after prostatectomy that are directly due to haemorrhage is small. I have only seen one case, and in searching the records at St. Peter's Hospital I could only find two deaths stated as due to haemorrhage. But there is a large number of deaths ascribed to shock, collapse, asthenia, where the cause is undoubtedly haemorrhage, and I have come to the opinion that post-operative shock in prostatectomy is usually the direct result of haemorrhage. In addition to these cases there are deaths attributed to renal failure, bronchitis, bowel complication, and other sequelae, where haemorrhage, although it was not directly the cause, was at least a contributing and sometimes a deciding factor in the fatal result.

Infection is seldom absent during the stage of healing of the suprapubic wound after prostatectomy. By daily irrigation of the bladder and sometimes by the use of constant irrigation, the infection can usually be reduced to a minor degree, but in some cases there is persistent sepsis, and during the healing of the wound or after closure of the bladder one or more masses of slough impregnated with phosphates are washed out or passed by the urethra. Such complications as epididymitis, pyelitis, venous thrombosis, pulmonary embolism, occurring during convalescence, are the result of post-operative sepsis.

A secondary calculus occasionally forms in the bladder or in the prostatic cavity. The cause of persistent infection in most cases is the sloughing of strips and tags of mucous membrane and of partly detached portions of capsule.

I have published[1] a series of sixteen cases of obstruction after prostatectomy occurring in cases operated on by different surgeons and have seen a number of others since the article was written. The obstruction in these cases lay, with only two exceptions, at the internal meatus where the bladder opens into the cavity left after removal of the prostate. At this point folds and strips of mucous membrane frequently remain after enucleation of the prostate and there is constantly a semilunar fold at the posterior lip of the orifice. This semilunar fold is usually formed by the trigone muscle and the mucous membrane covering it, but it may contain a thick layer of prostatic gland tissue. Partly detached capsule and nodules of prostatic tissue also contribute to the narrowing in some cases of post-operative obstruction. Occasionally the mucous membrane unites over the internal meatus so that no opening remains. Obstruction at the apex of the prostatic cavity where it joins the membranous urethra may be observed, but is much less frequent. It occurred in only two out of the sixteen cases of post-prostatectomy obstruction recorded.

In order to avoid these complications and sequelae I have practised for a number of years an open operation which I shall now describe.

Description of Operation.

The bladder is distended with fluid and opened and the prostate enucleated with the gloved forefinger of the right hand. It is only in rare cases of very tough small prostates or prostates of great size that I find it necessary to introduce the left forefinger into the rectum. In routine work it is not necessary to do so. This part of the operation, the actual enucleation, is most easily carried out with the patient in the horizontal position and by the finger. Some years ago I tried to enucleate in the Trendelenburg position with the fingers and also by dissection with the bladder fully open, but I found that in the majority of cases it was simpler and quicker to enucleate in the horizontal position.

Having enucleated the prostate and removed it from the bladder a catgut stitch is placed in each lip of the bladder wound and the patient placed in the Trendelenburg

position. My bladder retractor is then introduced. This retractor (Fig. 1) is an important factor in the operation, for by its use the cavity from which the prostate was removed is fully displayed. It consists of detachable blades on a square expanding frame. The blades are shown in the figure. The recess holds the abdominal wall and the edge of the bladder wound, and the lower part of the blade pushes the lateral wall of the bladder aside. A median posterior blade is shaped to the curve of the sacrum and

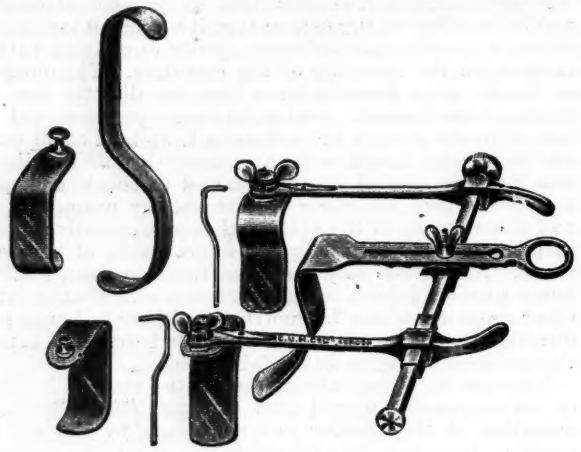

FIG. 1.

pushes back the posterior wall of the bladder. When the posterior blade is pulled backwards the lateral blades, which work on a swivel, are pushed forwards, and the anterior edge inclines somewhat inwards. A separate blade, moulded to curve round behind the pubis symphysis and raise the anterior wall of the bladder, is held by an assistant at the anterior angle of the wound. The bladder is now cleared of clot and a temporary gauze plug is introduced into the prostatic cavity.

The condition of the opening into the prostatic cavity first receives attention. Strips and folds of mucous membrane are picked up with long forceps and clipped away. The posterior fold presents many variations. It may consist of a broad crescentic ledge of mucous membrane and muscle overhanging the posterior segment of the vesico-prostatic opening. In this case long pressure forceps are placed on it at an angle, the points of the forceps meeting posteriorly, so as to include a wedged-shaped portion between the blades. This wedge is now cut away, leaving the forceps in position, and a stitch of fine catgut introduced by means of a long-handled curved needle on each side external to the forceps. This is tied and the forceps removed. The posterior fold may have the form of a conical projection, consisting of mucous membrane, muscle, and gland tissue. When pushed downwards this will almost close the vesico-prostatic opening. Another form of posterior fold is a thick glandular mass, which narrows the opening and which can be everted into the bladder. These glandular folds are cut away with long fine curved scissors, introducing a stitch of catgut to control any bleeding point.

This trimming and removal of folds and strips at the vesico-prostatic orifice leaves a large oval opening, which fully exposes the interior of the prostatic cavity. It effectually prevents the formation of a stricture at the outlet. After the operation, as I showed many years ago,[2] the prostatic cavity forms part of the bladder and there is no sphincter at the vesico-prostatic opening. The acting sphincter is now the compressor urethrae muscle situated at the outlet of the prostatic cavity.

Within the prostatic cavity loose strips and folds are often found. In clearing the cavity with a gauze swab a large fold of semi-detached capsule may be revealed. This is grasped with forceps and peeled off with the point of the curved scissors. A flattened nodule of prostatic tissue may likewise be discovered and removed.

Occasionally a long strip of urethra may have been pulled out in removing the prostate; this is held up with forceps and cut across low down near the triangular ligament. It is useless, and indeed quite unnecessary, to try to preserve such a strip. In the great majority of cases of prostatectomy the urethra is torn across transversely at the internal meatus, and very obliquely at the membranous urethra. This oblique rupture, as I have many times pointed out, leaves a narrow strip of urethral mucous membrane attached to the posterior wall of the prostatic cavity, and extending from the membranous urethra as high as the level of the verumontanum. On examining the enucleated prostate, removed in a single piece, the absence of this part of the posterior wall of the prostatic urethra will be seen.

The urethra tears across in this oblique fashion not because the surgeon plans to tear it thus, but because the urethra is held posteriorly by the ejaculatory ducts and the tissue surrounding them, and the area of the prostate between the ejaculatory ducts and the membranous urethra does not take any part in the changes which produce the so-called enlargement of the gland, if indeed there is any gland tissue in this area.

I have recently heard it recommended that the mucous membrane at the internal meatus should be stitched to the urethral mucous membrane, and that the prostatic urethra may be preserved by careful manipulation during prostatectomy. Examination of the enucleated prostate shows the thin, easily torn mucous membrane of the urethra attached to the inner surface of the lobes, and this seems to the ordinary observer to preclude any such possibility. But even if it were possible designedly to preserve the urethra and reattach it to the vesical mucous membrane the anatomical condition so produced would be a hollow tube of damaged mucous membrane without adequate blood supply stretching across a cavity containing urine. This tube would actually prevent the egress of the urine that found its way into the cavity. No better result could be expected from attempts to stitch the mucous membrane of the bladder outlet to that of the membranous urethra. Nor are such refinements necessary even if they were practicable. The fibrous wall of the prostatic cavity has long been known to form an adequate lining for the prostatic cavity. What is necessary is to make certain that no loose folds, tags, long shreds, and semi-detached gland nodules are left hanging from the wall of the cavity to promote sepsis and encourage the formation of secondary stone by sloughing.

The control of haemorrhage in this open operation is usually complete and accurate. The bleeding points frequently lie at the thick lip of the vesico-prostatic opening. Here on either side in the muscle or just under the torn mucous membrane may be found a spouting vessel. A pair of long pressure forceps is placed on the vessel and a fine catgut stitch passed round it with a curved needle on a handle. Bleeding may come from underneath this cornice and the point is difficult to see. By seizing the lip with pressure forceps and holding it back or everting it, the vessel may be exposed. Bleeding from the wall of the cavity is difficult to see. It frequently comes from the veins in the anterior wall of the cavity. Control by pressure forceps is difficult or impossible. Moynihan's curved pressure forceps are the best for this purpose. Temporary packing usually controls this bleeding. Should there be difficulty in controlling haemorrhage, it is an easy matter to pull the catheter point well into the bladder and pack the prostatic cavity firmly round the catheter with iodoform gauze. Having controlled the bleeding, assured a wide opening between the bladder and prostatic cavity, and removed all tissue that might slough, the retractor is removed and a large tube placed in the bladder. The catgut slings in the edges of the bladder wound are crossed over this and held up by an assistant. The bladder blades of the retractor are now replaced by the abdominal blades, and the retractor is placed in the pubic angle of the wound with the frame kneewards and displays the anterior wall of the bladder. A continuous catgut suture is placed in the cystotomy wound, and a small tube in the prevesical space. The retractors are removed, and repair of the abdominal wound carried out. The routine method that I use is to place two catgut mattress sutures through the recti about 1 to 1½ in. from the margin of the wound. This necessitates undercutting the skin, which is done at the preliminary incision. A continuous catgut suture unites the edges of the rectus sheath.

This operation is an attempt to bring the control of haemorrhage and the prevention of sepsis in prostatectomy into line with that practised in other modern surgical

operations. It also recognizes the fact, which I have proved elsewhere, that post-prostatectomy obstruction at the outlet of the bladder may occur in the hands of the most experienced operators, and it effectually prevents this sequel.

Reply to Objections.

Two objections have been raised to the operation. The incision is longer than that required for blind prostatectomy, and the duration of the operation is longer, so that more shock is produced. The increased length of incision is said to be the cause of post-operative hernia. The incision extends from the pubes to one two inches short of the umbilicus. It is the usual incision for the removal of growths of the bladder. I have not heard any objection to the use of such an incision in removing bladder growths.

The healing of the abdominal wound after any bladder operation depends upon the ability of the surgeon to close wounds of the abdominal wall. If he is unable to deal with this part of the operation he would be well to leave this and other bladder operations requiring full exposure alone.

The objection to a longer wound assumes that a short wound of the button-hole type safeguards the patient against hernia. This is not so. I have had to operate on a large hernia following prostatectomy by another surgeon where the wound was of this type, and such cases are not very rare. As a matter of experience the more extensive abdominal wound heals by first intention down to the tube, and gives rise to no anxiety at all.

The objection of increased time taken by the operation resolves itself into the question of shock. In the first place the length of the operation depends largely on whether or not the surgeon is accustomed to work rapidly and systematically. With ordinary surgical skill the length of time is little extended when we consider the prolonged irrigation that is frequently found necessary to control bleeding after the blind operation. Fifteen to twenty minutes is the usual time taken from start of the operation to the last stitch. I have watched a good many operators at home and abroad, and the duration of the blind operation usually exceeds this.

Shock after prostatectomy is due not to prolonged operation but to rough handling and to haemorrhage. Delicacy of touch is individual to the surgeon. The open operation is an attempt to control haemorrhage, and in this way to reduce the amount of shock during and after the operation.

REFERENCES.

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DISCUSSION.

Mr. FULLERTON (Belfast) argued that many of the cases of prostatectomy said to die from shock died really from haemorrhage. It was very difficult to distinguish between shock and haemorrhage. He had adopted Mr. Thomson Walker's operation in cases in which he believed that the patient could stand a slightly prolonged operation, and with the most satisfactory results.

Mr. KENNETH WALKER (London) congratulated Mr. Thomson Walker on having brought prostatectomy into line with other operations, and on having rendered it a surgical procedure completed under visual control. He (the speaker) had carried it out after having seen Mr. Thomson Walker's technique at King's College, and with excellent results. There was, however, one type of case in which he had had some doubt as to the correct procedure—that was the case in which, for one reason or another, the two-stage operation was advisable. Did Mr. Thomson Walker recommend the full exposure of the prostatic bed in such cases?

Mr. THOMSON WALKER, in his reply, said that the length of time occupied by the operation could only be correctly compared with that of the blind operation if the whole time that elapsed from the induction of anaesthesia until the moment that the patient left the table was considered, for much time was often spent after the blind operation by irrigation in an attempt to stop bleeding. In two-stage operations where the bladder had been recently drained by a suprapubic wound for sepsis or renal failure, he did not attempt to do an open operation, but was content to practise the blind operation. Nor did he practise the open operation on very feeble individuals. If, however, there had been prolonged suprapubic drainage, say, for a period of from a month to six months, he dissected out the scar and did an open operation. He drained the bladder with a large tube after prostatectomy, as he held that even with an open operation the two great indications for free drainage—namely, haemorrhage and sepsis—were never completely abolished.

SECTION OF PREVENTIVE MEDICINE AND INDUSTRIAL DISEASES.

Sir THOMAS OLIVER, LL.D., M.D., F.R.C.P., President.

INTRODUCTORY REMARKS.

THE PRESIDENT in a few words welcomed the members, and referred to the overcrowding that occurred in Newcastle during the war owing to the great influx of munition workers. He then called on Dr. I. G. Modlin, O.B.E. (Chairman of Health Committee, Sunderland), to take the chair. Dr. MODLIN said that it was of the greatest importance that medical men should take more interest in public health and in municipal government. Some might be co-opted on to the various bodies, but nothing could take the place of popularly elected bodies when control of public funds was in question. He raised the question whether the results of the various schemes for dealing with tuberculosis, maternity and child welfare, and venereal diseases were commensurate with the cost, and asked whether the best results would not be obtained rather by greater attention to housing? Having regard to the high taxation and heavy rates, this was not a time for new and expensive Government measures.

DISCUSSION ON THE EFFECT OF HEALTH LEGISLATION ON THE HEALTH OF THE PEOPLE.

OPENING PAPER BY Captain W. E. ELLIOT, M.B., Ch.B., M.P.

THE effect of public opinion is focussed by legislation, and it is instructive to compare the vital statistics of this and other countries. The enormous value of prevention as against cure is becoming more and more realized; but prevention is only brought about by the compulsion of some statutory enactment. Regulations are ineffective in the prevention of great epidemics, such as the black death and influenza—that is, where great epidemics cross oceans—but these epidemics draw public attention to the subject, giving rise to Royal Commissions and to legislation.

In 1388 the first Sanitary Act was passed, dealing with the removal of nuisances in England. In 1427 an Act was passed in Scotland forbidding lepers to come into towns to purchase food except at certain hours on three days a week, or to dwell elsewhere than in certain hospitals. Probably the cost was borne by local authorities. In 1446 a kind of quarantine was established in boroughs against plague, and the regulations appear to have been enforced. In 1511 a Medical Registration Act was passed. In 1518 a rough attempt was made to secure notification and isolation. In 1543 the first Plague Order was made. In 1568, under Elizabeth, the Aldermen of the City of London issued instructions with regard to infected houses. Before the end of the century searchers and health registration were in force. In 1720 Richard Mayne recommended notification at a fee, visitation, isolation, and cleansing of houses. His advice was unheeded.

During the nineteenth century there was an enormous increase in population after the industrial revival and the unlocking of the coal seams. The population, which in Elizabeth's reign was three and a half millions, is now thirty-seven millions. This rapid increase compelled the passing of sanitary legislation, and we are much indebted to the inspiration of Lord Shaftesbury during the hungry forties. The expectation of life has greatly increased

during the past fifty years. This is shown in the following table, which gives the expectation of life in the several decades:

1871–1880	41.0 years
1881–1890	43.7 ,,
1891–1900	44.1 ,,
1901–1910	43.9 ,,
1911–1920	51.5 ,,

This increased expectation is due to the extinction of the great fevers and to reduced infant mortality, and has been secured very largely through legislation.

In 1854 the death rate was 37.2 per 1,000. In 1920 it was 12.4 per 1,000. Medical skill has not increased so much as the influence of preventive legislation, but increased medical skill has brought about a great saving of life. In Great Britain to-day, as compared with 1871, there are thirteen millions more population and 50,000 fewer deaths a year. The increased expectation of life to-day is due to years saved during the younger and more useful period of life, for a man of 70 has the same expectation of life—namely, thirteen years, now as in 1871.

During the middle of last century there were in the working-class districts of Edinburgh neither sewers nor drains. Refuse and garbage were thrown into the streets. There were no privies. The evil conditions were accentuated by the Irish potato famine and the consequent emigration into England. Fares were then cheap and starving boat-loads were huddled into the slums of our great cities. This period of emigration from Ireland was marked by a definite rise in the fever death rates in England.

Public health legislation led to public water supplies, to more washing and to killing of lice, followed by the disappearance of typhus fever. As water supplies became purer, typhoid fever gradually lessened. In 1853 Lord Palmerston wrote to a correspondent: "It is the duty of man to plan and execute measures to free the poorest districts from sources of contagion." In 1869 a Royal Sanitary Commission was appointed. In 1872 the Local Government Board was established. In 1875 the great Public Health Act was passed into law. In 1878 an Act was passed to provide water supplies.

Average Number of Deaths from Typhoid Fever.

Between 1871 and 1880	7,800
,, 1891 and 1900	5,300
,, 1901 and 1910	3,000
,, 1911 and 1920	1,200
During 1920	537

This marked drop is due more to legislation than anything else. Similarly in 1920 there was no death from typhus and only one in 1919. That the marked drop is due not so much to increase in medical skill as to the effects of legislation is shown by the marked drop of 78 per cent. in typhus in Poland recently, following a grant of £50,000 from this country and consequent organization and compulsion.

In 1870 scarlet fever killed 30,000 a year; now the deaths are about 1,000 a year. The fall in measles has been much less marked, the number of deaths in 1871 and 1920 being 9,000 a year, the mortality then and now being 1 in 10.

As regards the outlook for the future, take pulmonary tuberculosis. In this disease the deaths, in round figures, were:

In 1911	39,000	In 1916	41,000
1912	38,000	1917	43,000
1913	37,000	1918	46,000
1914	38,000	1919	36,000
1915	41,000	1920	33,000

In Scotland the war rise did not occur to the same extent. The causes of the war rise are still obscure. There has been a similar fall in deaths from non-pulmonary tuberculosis, from 13,000 deaths in 1911 to 9,000 deaths in 1920. It is noteworthy that notifications are falling too, though less importance can be attached to this.

	All Forms.	Pulmonary.
Notifications in 1913	130,000	91,000
Notifications in 1920	80,000	63,000

It may be argued that there has been a general fall in the incidence of tuberculosis, but this has not been the case on the Continent. Thus the death rate in Vienna, which of Continental cities has suffered most from starvation, is higher than the rate in Warsaw, Cracow, etc.

In maternity and child welfare work the grant of money by Parliament for special measures was followed by a pronounced drop in infantile mortality—a strange coincidence.

As regards the general health, certain interesting points arise in connexion with the present widespread unemployment, which in May reached the enormous figure of 22 per cent. Yet the vital statistics have apparently not suffered, and it is not improbable that the granting of the unemployment dole may have had some influence.

As regards the cost of recent health legislation, the following simple figures may be of interest:

	Burnley.	Manchester.
Tuberculosis	1d. ...	1⅜d.
Venereal diseases ...	less than half a farthing	¼d.
Maternity and child welfare ...	1½d. ...	2¾d.
	2¾d. in £.	4⅜d. in £.

This works out at about 2 per cent. of the total rates.

The improvement of the health of the people depends upon public opinion, medical skill, and compulsory measures. There is a great field in factory hygiene, and it will be well to trust less to laboratory experiments than to mass experiments in factories. Factory legislation was agitated for by laymen, and especially by Lord Shaftesbury, who carried the Twelve Hours Act which came into force in 1844. In 1847 a bill was passed limiting the hours of women and young persons. These measures would never have been carried by private enterprise. No less an authority than the State is capable of dealing with such problems.

The reaction due to the war period can be understood, but it would be fatal to ignore the good results that have come about through public health legislation in the past.

DISCUSSION.

Dr. EUSTACE HILL (County M.O.H. Durham) said that it was not possible to legislate in advance of public opinion, and this point was overlooked in recent legislation. The Public Health Act, 1875, was out of date. Legislation on health matters was now piecemeal, and there was urgent need for the reconsideration and codification of the whole of the Public Health Acts. Dr. Fraser of Edinburgh had shown the terrible effect of milk from tuberculous cows in causing non-pulmonary tuberculosis. He gave 40 per cent. of such cases as due to tubercle-infected milk. The Milk and Dairies Act should be put into operation as soon as possible. The history of public health legislation might be divided into two periods. The first began in 1875; it was concerned with sanitation, water supplies, sewers, infectious diseases, hospitals, etc. A fall in the death rate commenced and continued to the present time. The second period began in 1905 with measures for the protection of infants. The Notification of Births Act, passed in 1907, had had a most important effect through the influence of health visitors. This Act, which was at first voluntary, was made compulsory in 1915. Government grants stimulated health measures. Falling death rates stimulated grant giving. This second period was concerned with the care of the individual as exemplified by measures touching tuberculosis, the schools, and venereal diseases. In Durham county there was a slight increase in tuberculosis during the war, due probably to war strain, women's employment, and deficient or unsuitable foodstuffs.

Dr. A. E. COPE (Westminster) said: Public health administration is in advance of public opinion, being guided by professional opinion. It is necessary to educate public opinion, otherwise Acts tend to become less effective. For example, the Vaccination Acts are becoming less and less effective owing to popular apathy based on ignorance. There is need for systematic education alongside of legislation if the best results are to be secured.

Dr. MILLER (County M.O.H. Radnor) spoke of the regrettable tendency of Government departments nowadays to add to the labours of medical officers by the introduction of numerous forms involving much correspondence. Many of them appeared to be superfluous. The procedure in connexion with grants of milk under maternity and child welfare schemes was a case in point. Legislation should be so conducted as to lead to a minimum of interference with local authorities.

Dr. COLES (Medical Officer, Gas Light and Coke Co., London) considered that greater attention should be given to the prevention of accidents, and especially of slight accidents, which often resulted in serious consequences owing to neglect of precautions. Unfortunately workmen not seldom neglected to observe the regulations made by the Home Office, and apparently no means of compelling them to do so existed. In his experience amongst workers in trinitrotoluol and in molten metal this neglect had been forcibly brought home to him.

Dr. WALKER (Southend) said that the middle classes were bearing an almost unendurable weight of taxation, and one result was the limitation of the family. This was especially to be deplored, because the children of the middle classes were just the kind that the country needed most. Where practicable voluntary effort in health as in other matters was preferable to State interference. The Government should have a definite policy with regard to vaccination, which should be done as early as possible.

Dr. JOHNSON SMYTH (Bournemouth) said that when a surgeon in the Foot Guards he had noticed that a high tuberculosis mortality was associated with defective ventilation. Gouty people he had observed seldom suffer from tuberculosis. The increased incidence during the war might be due to deficiency in nitrogenous diet, also to overwork, and the acceptance by medical boards of men with old pleuritic adhesions.

Dr. MACKAIL (Lecturer in Public Health, St. Mungo's College, Glasgow) thought credit for the improvement in health and reduced death rates of recent years was due to municipalities rather than to legislation. Some municipalities were progressive and enlightened, and led the way by pioneer measures, which subsequently were copied and embodied in legislation. The fall in infantile mortality was associated with a decline in the birth rate.

Dr. DEARDEN (M.O.H. Port of Manchester) said that legislation had been slow because of the necessity of focussing public opinion. The first real Factory Act was passed in 1833, the next in 1844. The agitation in connexion with the Ten Hours Act drew attention to the bad sanitary conditions, and was the moving power in developing industrial hygiene. The influence of specialist health officers (medical officers of health) and their exertions had led to rapid improvement in the sanitation and health of towns. Factory legislation was never guided so much by a body of experts and was therefore slower. The medical staff of the Home Office consisted of four persons only.

The PRESIDENT (Sir Thomas Oliver) observed that the early introduction of water supplies was due to compulsory legislation, but asked whether this was done for health reasons or whether it was not rather due to the danger from fire. Lord Shaftesbury played a great part in securing legislation to improve labour conditions. The reduction in infant mortality might be due to the deprivation of unsuitable articles of diet. Thirty years ago, when there was a big strike and food was scarce, infant mortality went down.

After a few words from Dr. A. FORBES (Sheffield), Captain ELLIOT said, in reply to the discussion, that the Ministry of Health had been too recently established to make it reasonable to expect to obtain measurable results. The central provision of all funds for health measures would be disastrous and much must be left to local enterprise and effort. The improvements in factory hygiene were a definite illustration of what legislation by itself had accomplished.

DISCUSSION ON THE IMPORTANCE OF INDUSTRIAL MEDICINE TO THE COMMUNITY.

OPENING PAPERS.

I.—EDGAR LEIGH COLLIS, M.A., M.D.Oxon.,

Talbot Professor of Preventive Medicine, University of Wales.

FIRST thought, then research resulting in knowledge, and finally action, represent the stages of scientific progress. Where for any reason, as in the art of medicine, action based on empiricism has come first into existence, new knowledge based on research frequently finds some vested interest opposing action on new lines, or at least some *vis inertiae* resulting from innate conservatism. New knowledge in medicine has recently been acquired through research, and practice is gradually changing accordingly. But in no branch is thought, research, and knowledge less hampered by action than in that of industrial medicine, because there is little or no action, and in no branch, possibly for that very reason, has the trend of thought been advancing more rapidly.

Medical service during the past twenty years has been changing its outlook. Previously treatment of the sick was the first consideration, and the public only came in contact with the profession in case of illness. Questions affecting the maintenance of health were impersonal and left to the public services concerned with water supply, drainage, disposal of refuse, and the sale of wholesome food. More recently, however, the personal note has been sounded in relation to maternity and infant welfare, school medical service, tuberculosis, and venereal clinics. Notification of births has provided the information upon which infant welfare work is being constructed. Schools, by gathering together children for educational purposes, provide the opportunity for medical inspection of each child. Notification of tuberculosis again is of value for establishing, through the work of health visitors, personal touch with contacts—the preventive side of the tuberculosis campaign. Here adult life is just touched; but, generally speaking, means have yet to be found for bringing preventive medicine into direct personal contact with the adult. For this purpose industry, which gathers adults together, provides the means. The points for consideration are, whether the community would benefit if industry shouldered this responsibility and whether industry itself would benefit by such action. The benefit to the community is closely interlocked with the benefit to industry, since the community is composed of constituent groups, among which the industrial group (using the word industrial in its widest sense) forms the greatest part. And if the industrial part of the adult population were sound in health there would not be need for much else.

The first point to ascertain is whether the health of the industrial part of the community is sound. Appeal on the matter may be made to different types of data. First come the recent disclosures of the army recruiting examinations. Here only 36 per cent. of the male adults of age to bear arms were classed as Grade 1; but the numbers attaining this standard were found to vary widely according to occupation; the miner and the agriculturist provided a far higher proportion than other groups of industrial workers.

Next, appeal may be made to mortality statistics. Here we find the agricultural labourer with a comparative mortality figure of 470; a standard set by the lowly paid and poorly housed agriculturist who works long hours is surely not too high to aim at. Yet the comparative mortality for printers is 773, for tailors 799, for cotton operatives 811, for shoemakers 820, for iron and steel manufacturers 837, for Lancashire coal-miners 941, for edged tool-makers 1,010, for costermongers 1,507, and for general labourers 2,301.

Third, age distribution gives us some information. Out of 1,000 occupied agriculturists 225 are aged 55 and over, out of 1,000 cotton operatives 69, out of 1,000 printers 66, out of 1,000 coal-miners 75, out of 1,000 metal workers 98, and in the building trades 121.

Neither set of data indicates a satisfactory state of affairs, and each set brings out marked differences in different occupations. There is, then, a wide field of work

before industrial medicine to establish the why and wherefore of these differences. There is an inclination to associate the subject of industrial medicine only with occupational diseases, such as poisoning from lead, mercury, or phosphorus, anthrax, miner's nystagmus, writer's cramp, or caisson disease. These peculiarities of industrial disease are important, both in themselves and in drawing public attention to the influence of occupation upon health. Moreover, through them the guide-post of industrial hygiene has been established—the guide-post which directs attention to prevention rather than to cure. The scope of work has enlarged much beyond the boundaries of occupational disease, but the guide-post is the same.

Industrial medicine to-day is recognized to be directly aimed at preventing disease and maintaining health. In industry more easily than elsewhere in the community can the balance be cast between the debit of sickness and inefficiency and the credit of health and productivity; this matter will be referred to again later. Here there exists a direct economic interest in maintaining health, an interest which up to the present has hardly been perceived by industry. Nor does the matter end here, for opinion is hardening that a definite duty lies with those who employ labour. The State is now undertaking work upon which large sums of money are being spent in order to bring up from birth to adolescence healthy individuals. Those who thereafter employ these persons have to thank the State that this supply of labour is at their disposal and must in their turn maintain it in health. This opinion finds its expression in Workmen's Compensation Acts and schemes of unemployment benefit. The tendency in the past has been to shift the burden of responsibility on to some insurance agency; but the latest compensation scheme under the Workmen's Compensation (Silicosis) Act, 1918, places upon industry—the refractories industry in this case—the responsibility of shouldering its own insurance. Action on these lines will probably prove a direct incentive to industry to lighten the liability by actively pursuing preventive measures.

The personal note in the application of modern preventive medicine has already been alluded to. This note is not to be perceived to-day in factory life. Yet the community as a whole needs it. The State up to adolescent life is striving to instil the principles of health, and its efforts are yearly increasing in effectiveness. Then the youth passes into some occupation where his master, as judged by social standing and worldly wealth, stands far above the school teacher, and is presumably more worthy of respect.

But the youth finds now no attention paid to health and its maintenance. Is it a matter for surprise that he disregards the precepts of his former teachers as something only concerned with boyhood, something not needed in manhood, something it is manly to despise. There are here immense possibilities in industry. Fresh air, sunlight, cleanliness, and wholesome food are necessary to efficiency in the work of adults just as they are for children. Moreover, a standard set in these matters by the all-admired capitalist who rules industry would spread from the factory to the home.

To-day the reverse holds good; the coal-miner carries home the colour-bar of his occupation, and no Sherlock Holmes is needed to recognize the cement-maker, the stoker, the cotton operative, the dock labourer, the tanner, or the man from the rolling mills on his way to carry the grime of his work to his artisan dwelling. Example, indeed, is stronger than precept. Not until tidiness, cleanliness, and fresh air, which are the breeding ground of good manners and good thought, are to be found in British industries, can we expect to find them in British homes. Here again a duty is owed by industry to the community, and a debt, the payment of which is long overdue. The community, being largely composed of industrial workers, must benefit by any action which benefits industry, and consideration of the importance of industrial medicine economically to industry must indicate at the same time its economic importance to the community. A few short sums in arithmetic will give help.

Labour Turnover.

The drift of workers from one place of employment to another is now recognized to be a heavy economic burden upon employers and employed. Employers suffer because workers newly engaged experience more accidents and suffer more sickness than the more permanent staff; they are also less productive units. Various estimates have been made of the cost of changing a worker, some place it as high as £5. Let us err on the safe side and put it at £2 10s. The worker himself, on changing employment, may be out of work for a while, then, when he does get work, at first he earns less and is more liable to sickness and accidents. He also loses not less than the employers, say £2 10s. on the average. That is to say, every change costs industry not less than £5.

Various calculations in America and in this country place labour turnover at a figure which in some cases attains to 400 per cent. Let us be content and place it at 100 per cent., which means that to maintain a personnel of 1,000 workers at full strength every year 1,000 workers require to be engaged to replace those who left. In our factories and workshops alone are some eight million workers, then there are over a million miners with a similar turnover. These, together with those employed on the land, on the railways and in transport service, as well as shop assistants, clerks, and the mercantile marine, make up not less than twenty million persons. A labour turnover on this total of 100 per cent. at £5 per head comes to 100 million pounds a year. This high labour turnover is unnecessary, as has been shown both in the United States and here; it falls to 30 per cent. where medical supervision of entrants and hygienic conditions of employment exist. This would mean a saving of seventy million pounds a year.

Lost Time.

Careful inquiry has established that the underlying cause at the back of lost time is either certificated sickness or that condition of lowered health which precedes sickness. Various estimates of lost time have been made. In some cases it amounts to 20 per cent. of total possible hours; but when health conditions are favourable it may fall below 4 per cent. An average of 10 per cent. probably is not excessive for half the employed population; while 4 per cent. may be taken for the other half. Total possible working hours each year may be placed at a round figure of 2,000. The loss of 10 per cent. means 200 hours, which at a wage of 1s. per hour comes to £10. The loss of 4 per cent. means 80 hours, which comes to £4. Ten million persons at £10 means £100,000,000. Ten millions at £4 means £40,000,000. The difference, £60,000,000, represents what may be easily attained by medical supervision in industry. On these two items alone there is a possible saving of £130,000,000 a year.

Industrial Convalescence.

There is still another valuable contribution, connected with recovery from sickness, which industry can make to the community and at the same time benefit itself. Sickness among industrial workers, whether due to accident or ill health, is liable to be unduly prolonged for two reasons. In the first place weekly wage earners tend to be unduly anxious about themselves and their symptoms, and unduly anxious lest if their invalidity is prolonged their place may be filled up. This anxiety tends at once to delay recovery and also to induce them to attempt to resume full-time employment before they are ready, when a second breakdown ensues. In the second place these persons are in receipt of either compensation pay or sickness allowance which are forfeited directly they start upon work of any kind. Convalescence can be expedited both mentally and physically by graduated activity of an interesting nature, and the best form of interest is remuneration for work done, which is to-day precisely the form of activity prohibited for the industrial convalescent. The result is that to-day enormous sums of money, which there are no means for estimating accurately, are expended in retarding convalescence.

Instances of this kind of case can readily be recalled: the poisoned hand or injured limb, cured so far as the surgeon is concerned, for which short-time light employment is needed to restore functional usefulness; the consumptive discharged from sanatorium, but quite unfit to resume full factory hours; the nervous heart case for whom graduated exercise up slopes only gives opportunity for concentrating attention on the vagaries of cardiac behaviour to the detriment of convalescence; the dyspeptic who needs oxygenation resulting from exercise to rectify his gastric peristalsis; the great class of neurasthenias

often called debility and suspected to be laziness, which after initial rest urgently need a period of short-time work; the list could easily be lengthened indefinitely. Each and all require—what to-day they cannot get—a period of short-time remunerative activity.

There still remain for consideration those permanently maimed in industry who are to-day cast on to the scrap-heap as unemployable, to be a permanent charge on industry or on the rates. Holman has estimated that annually 250,000 workers are permanently thrown out of employment through accident or preventable disease in the United States. There are no accurate statistics for this country, but a census taken in Wales in 1918 revealed that one in every 810 civilians had lost one or more limbs, and that in the industrial district of South Wales the proportion was one in every 695. Application of the former figure to the population of the United Kingdom gives a total of limbless civilians at any time of over 58,000. Few persons are ever maimed so that they do not retain some productive capacity. The Ministry of Pensions in this country—and similar evidence is forthcoming from France, America, and other countries—have shown what can be done through industrial re-education for maimed soldiers. Eighty per cent. of war cripples can be trained to carry on a trade without special equipment. The need for continuance of this work for those maimed while earning their livelihood—for assuredly peace has its victims no less than war—is clear. The duty, and also the benefit resulting, lie with industry, in whose service the disability is sustained, just as the State has undertaken the duty for those injured in her service.

Debit and Credit.

The proposition is put forward that industrial medicine properly applied can effect a saving each year on labour turnover of from sixty to seventy millions, on lost time of fifty to sixty millions, and through industrial convalescence of many millions more. Put the total at £140,000,000 on a conservative estimate. There are to-day something over 40,000 doctors in the kingdom; the cost, if industry employed half the profession and gave each doctor £2,000 a year for whole-time work, would amount to £40,000,000 a year, leaving a handsome balance of £100,000,000 a year. Such wholesale engagement of the profession is not proposed, and indeed is not needed. The figures are only instanced to demonstrate that industry by developing industrial medicine has the promise of great profit while it fulfils a great social service.

The trend of thought to-day is against nationalization of industries, but industries must realize that while maintaining their independence they take over at the same time certain responsibilities as regards those employed which under nationalization would be undertaken by the State. Recognition of these responsibilities and taking them up would entrench the position of industrial independence. Failure in this matter, quite apart from economic waste, must sooner or later cause those employed to demand reconstruction of modern industrial organization. Such reconstruction might seriously dislocate the community, with sufferings as a consequence, such as Russia is now experiencing with no commensurate advantage. To-day our profession stands too much aloof from such thoughts, and does not do enough to impress upon industry that there is a science of medical sociology, the principles of which, if applied to labour unrest, would give results more certain, more sure, and more enduring than all the remedies evolved from the inner consciousness of political economists, who may know somewhat of politics but know nothing of the economies of the human machine, and who give lip service only to the truth that a healthy body is necessary for a healthy mind. In very truth the community to-day greatly needs an industrial medical service; it needs it in the interests of health; it needs it in the interests of economy; it needs it in the interests of industrial efficiency; it needs it in the interests of social contentment.

II.—Sir Kenneth Goadby, K.B.E., D.P.H.Camb.,
Medical Referee for Industrial Poisoning, London.

Professor Collis is very happy in the opening sentences of his paper in which he epitomizes in a few words the difficulties which beset those who are engaged in bringing thought, research, knowledge, and action into the realm of industrial medicine. Speaking personally, as an inquirer into the causes of the disabilities suffered in many industrial processes, more especially those industrial occupations in which lead is used or manufactured, I am constantly hampered by the perfectly frank and often good-willed obstruction of both employer and employee to innovations directed towards the improvement of health conditions. On the other hand, extreme measures may be proposed to combat an evil recognized by its effects, though its actual cause may be little understood, and the somewhat tempting but unscientific and uneconomic point of view is easily adopted, contained in the old Hebraic dictum "I cannot away with it." An especial instance of this no doubt perfectly genuine but misguided frame of mind is to be found in the controversy at present raging regarding the suggested prohibition of the use of white lead as a pigment in the arts and manufactures. That lead poisoning exists amongst the users of lead is well known; still more it is well known that its incidence has diminished, shown in the diminution in death rate and cases of poisoning following the reduction of lead dust in dangerous lead processes; and yet in an extraordinary document bearing internal evidence of the acute propagandist, the so-called questionnaire emanating from the International Labour Bureau at Geneva, dust as a cause of poisoning in the painting trade is dismissed with an almost contemptuous negative. One has only to refer to the excellent results obtained through the Special Home Office Rules in the white lead manufacture, in potteries, and in other trades, in which the opener of this discussion had no small share on the administrative side, to see the fallacy of disregarding dust as the most important vehicle by which lead poisoning is produced industrially. In these industries the use of the deleterious material is still continued with comparative safety in processes in which it has been possible to reduce the amount of dust within innocuous limits. The quantity of soluble lead in pottery glaze has been reduced, but lead silicate is still the glaze although modified, in that the fritting or combining of the lead with the silica is carried out before the glaze is applied to the ware instead of the lead silicate being from a soluble salt of lead during the process of firing the ware. It is therefore not fair to argue from the diminution of the quantity of soluble lead present in a glaze to the quantity of soluble lead present in a paint. This by the way.

Professor Collis has emphasized the necessity of the industrial individual acquiring a competent knowledge of the danger of any deleterious process in which he is engaged, and I would add that, as in microbic disease individual susceptibility varies within wide limits, so also the resistance towards varieties of industrial poisoning shows wide variations of tolerance and intolerance.

At a meeting of the Royal Society of Medicine in which T.N.T. poisoning was discussed, Professor Collis showed a curve demonstrating the presence of susceptibility and immunity towards this poison; and in a recent paper before the Royal Society of Arts I was able to show that the largest incidence of lead absorption amongst workers in white lead factories occurs within the first six months of their exposure, and that by careful supervision, alteration of employment, and suitable treatment such susceptible persons finally obtain a tolerance which enables them to work for long periods without disability. This is an important factor, and is well brought out by Professor Collis's suggestion of a period of industrial convalescence for persons who have suffered from any type of industrial disease; at present the factory surgeon is often handicapped by the absence of facilities to carry out such a procedure.

Lead poisoning bulks largely as an industrial disease, but its statistics are sometimes looked on with suspicion, particularly as regards those trades in which lead poisoning is not a certifiable disease and in which no special rules or medical inspection exist. The statistics of lead poisoning may thus be divided into two categories:

1. Those in which the case is seen by a certifying surgeon—a surgeon with a special knowledge of the symptoms, and, above all, a surgeon practising in the particular district in which the diseases are likely to occur; I regard the suggestion that the certifying surgeon should be superseded by a whole-time official as not in the highest interests of the working-class population. A surgeon practising in a district is acquainted with the general run of disease in that district more than a whole-

time officer not engaged in private practice, and who has not the same opportunity to estimate the value of certain symptoms common to both lead-poisoning and other diseases. The notification and certification by the certifying surgeons is, on the whole, extremely satisfactory. As medical referee for industrial poisoning in the County of London a number of cases are referred to me in which the certificate of the certifying surgeon is appealed against, and rarely have I found myself in disagreement with the certifying surgeon. This class of statistics may, therefore, be regarded as satisfactory.

2. The second series of statistics into which lead poisoning is divided are those arising in industrial processes which are not certifiable by the certifying surgeon in the district. Such cases are frequently seen by medical men who are unfamiliar with the symptoms of lead poisoning, and who rely for diagnosis (not surprisingly) upon the history and occupation of the sufferer who seeks their advice. Further, the opportunities for obtaining knowledge on the differential diagnosis of many types of industrial disease is denied to a large number of men who annually qualify, and who have unfortunately little opportunity at hospital of studying the symptoms of occupational diseases. This lack of knowledge may at times lead to extravagant and absurd statements, such as that made to the Departmental Committee on Lead Poisoning amongst Painters, when a noted physicist, who was told by his doctor that he had suffered from lead colic, concluded that the spectroscopic lines seen in drying paint vapour must be volatile lead, and committed himself to that opinion!

The health of painters, the diseases from which they suffer, the processes of their industry that cause disease, comprise a much debated problem of industrial medicine at the present time, and I may perhaps be permitted to draw attention to some of the points on this question which are now engaging public attention. Complete agreement exists that dry rubbing down of old or new paint may produce lead poisoning and constitutes the painter's main risk. To obviate this risk one school of opinion suggests the total prohibition of lead as a paint. Another class of opinion argues that for one risk that can be easily obviated it is uneconomic to prohibit the use of materials whose manufacture affords occupation to a large class of industrial workers and for which there is no adequate substitute. The whole question, therefore, becomes one of industrial medicine.

Painting is an operation so widely performed that many medical men are acquainted with the curious symptoms following the inhalation of the vapours given off from drying paint. The most delicate tests applied to these vapours fail to show the presence of any lead; yet symptoms closely resembling lead poisoning are produced in susceptible persons, and there is little doubt that a large number of such cases are returned as painter's colic—hence lead poisoning—and there is every likelihood that this class of case will increase, as since the war there has been a wholesale tendency to replace turpentine with various other forms of volatile driers, some of which are exceedingly poisonous; the attention of medical practitioners as a whole should therefore be directed towards such forms of poisoning. Clinical observation and careful inquiry as to the facts would yield much useful information.

I have recently had the opportunity of studying the figures of illness suffered by painters belonging to the sickness benefit branch of the Hearts of Oak Society, and I have taken out the numbers of cases of various types of disease under four headings—respiratory, alimentary, muscular, and nervous, obtained from the short list of the Registrar-General. The respiratory diseases comprise influenza, phthisis, bronchitis, pneumonia, and other diseases of the respiratory organs. The alimentary diseases are colic, diarrhoea, dyspepsia, enteritis, gastro-enteritis, gastric catarrh, gastritis, haemorrhoids, gastric fever, and gastralgia. Under the heading of muscular I have placed rheumatism and rheumatic fever, myalgia, lumbago, gout, and ague, as being likely in the painting trade to be associated together under the general term of "rheumatism." In the nervous division are included neuritis, neurasthenia, neurosis, and vertigo.

Table I gives the percentage which these various groups bear to the total number of cases in each age group, and it will be seen that the chief diseases from which the painter suffers are those of the respiratory tract. The recent

TABLE I.—*Painters, from Hearts of Oak Figures, 1920.*

Age Group.	Group of Disease.								All Causes. Total Numbers.	Exposed to Risk.
	Respiratory.		Alimentary.		Muscular.		Nervous.			
	No.	%	No.	%	No.	%	No.	%		
16-20 ...	4	25.0	2	12.5	1	6.2	1	6.2	16	89
21-25 ...	5	21.7	1	4.3	3	11.5	1	4.3	23	187
26-30 ...	8	25.0	5	15.5	4	12.5	1	3 1	32	325
31-35 ...	7	25.9	2	7.4	6	22 0	0	0	27	323
36-40 ...	14	38.8	1	2.8	5	13.9	0	0	36	312
41-45 ...	6	25.0	3	12.5	3	12.5	0	0	24	266
46-50 ...	8	26.6	4	13.3	6	20.0	2	6.6	30	218
51-55 ...	6	33.3	3	6.0	5	27.8	1	5.5	18	131
56-60 ...	6	35.3	0	0	2	11.7	2	11.7	17	95
61-65 ...	4	50.0	0	0	0	0	0	0	8	41
66-70 ...	4	57.1	0	0	0	0	0	0	7	26
									238	2013

admirable paper by Professor Armstrong and Mr. Klein has shown that the droplets of paint splashing are larger than any size likely to be inhaled and that the amount of actual splashing which reaches the face is minimal and not likely to subject the painter to an intake of more than 0.7 mg. of lead per working day of eight hours if he is engaged the whole day in stippling; the high incidence of respiratory disease is possibly associated with the inhalation of vapours of the drying paint. More particularly is this likely to be the case as in the splashing produced in painting a vertical surface practically no splashes come beyond 15 in. from the foot of the wall. Most paint is now sold ready made and very little so-called "breaking down" of the dry white lead is done.

It is interesting, further, to note that in this group of painters in the Hearts of Oak the actual claims for sickness over the various age groups is less amongst painters than that of the total number of persons claiming benefit. The absence of high incidence of disease of a type which might be attributable to lead—namely, those in the alimentary and nervous sections—together with the high incidence in the respiratory, is a little difficult to reconcile with the supposedly high incidence of lead poisoning amongst painters as a whole, as it would seem that if lead poisoning were a serious feature in the painting trade it should show in a block of figures of this type.

Mr. Croft-West has kindly given me a comparison of the causes of death in occupation 64 (painters, etc.), from the Seventy-fifth Annual Report of the Registrar-General. The relative importance is expressed as a percentage of the comparative mortality figure. The shortened table shows that respiratory diseases come first, circulatory diseases second, and urinary diseases third, and that in 1911 the three groups comprise 60 per cent. of the actual percentage.

Cause of Death Expressed as Percentage of Comparative Mortality Figure.

	1901.		1911.
Diseases of respiratory system ...	35.69	.....	28.66
Diseases of urinary system... ...	8.96	.....	11.62
Diseases of circulatory system ...	13.74	.....	22.32

There is therefore an issue between these two points of view, and the community is entitled to ask exponents of industrial medicine as to the proper solution of such a dilemma. Recent work has to some extent suggested the direction in which this may be sought. Comparison of the disease occurring in persons who work in lead alone (white lead workers), uncomplicated by the dust of angular particles (potters), shows that while respiratory diseases are common in potters who inhale flint dust and lead together, it is not so common amongst white lead workers who only inhale lead dust. The material of which the painter makes use is soft and not angular, and it is well known that persons exposed to baryta and other types of dust without angular particles do not show a high incidence of

respiratory disease. The painter, on the other hand, is exposed to a risk to which neither of the other two classes of industrial workers is exposed—namely, the inhalation of fumes of volatile products (turpentine and turpentine substitutes) which are known to produce respiratory effects in susceptible animals.

In a recent examination of white lead workers and painters the average blood pressure of the painters in the same age-groups was found to be higher than that of lead workers. This is a suggestive point—the constant inhalation of vapours of volatile fluids, among which are compounds of the benzine and paraffin series, is conducive to renal affection and high arterial tension. The higher arterial tension of painters is the more striking, as painter's work is much less severe; less muscular effort is required in using a paint brush than in carrying half-hundredweights of lead or huge baskets filled with wet tan.

One further statistical fact, culled from the figures of the Registrar-General's report for 1911, appears to corroborate the growing opinion that it is in the volatile portions of the paint rather than in its solid constituents that one must look for the cause of the disease. The birth rate tables per 1,000 males aged under 55 years gives a birth rate for the painters of 155, which is actually higher than for clergymen, barristers, solicitors, and law clerks, and farmers and graziers (148), whilst the figure for all males is 162. Such figures do not suggest serious lead absorption.

This short epitome of some of the facts of the painting trade controversy supports by a specific instance the difficulties underlying the problems of occupational disease outlined by the opener of the discussion, and emphasizes the necessity of strictly scientific methods in dealing with problems of industrial medicine.

DISCUSSION.

Captain W. E. ELLIOT, M.P., thought it desirable that labour should treat medical men engaged in factory hygiene as private practitioners are treated and not as if they were employers' agents. It was important to secure a correct spirit and a right attitude of mind. While it was doubtful how far laziness was pathological, it might well be psychological in origin. The problems of industrial hygiene were wide. The figures given by Professor Collis should be taken into account in the consideration of legislative proposals. For example, the high proportion of agricultural labourers over 55 years of age as compared with miners was an important point in considering the question of an agricultural wages board. Reforms unfortunately meant more spending by an already overburdened community. The large labour turnover referred to by Professor Collis might be due to psychological causes, such as the element of monotony. The spirit of man revolted against the idea of supreme efficiency. As regards convalescents, the Ministry of Pensions was the biggest medical organization, dealing with 1,200,000 disabled men in receipt of pensions. Of these, a residue of 10 per cent. would remain permanently subnormal. Here was an opportunity to investigate short-time employment, and to apply the results to industry. Failure to deal with the problems of industry might lead to disastrous consequences. Industry must put its house in order. A small sentimental cause might result in a big explosion.

Dr. DEARDEN (M.O.H. Port of Manchester) said that a proper industrial medical service ought to be established, as was being done in Belgium, where since the war a brave attempt was being made to reconstruct industry. There an independent factory medical service with its own chief had been set up, including eleven medical inspectors of factories, a laboratory, and an expert research chemist. There were also inspectors of young people while at work. An independent or semi-independent department was needed in this country with a large staff of medical inspectors. At present there were only four medical men and one woman. The inspectors should live in the industrial areas and keep in close touch with industry. Great advantage was to be gained by utilizing the services of general practitioners in this work. During his own long period of service as a factory surgeon in Manchester he had been able to do original work in connexion with aniline poisoning, "phossy jaw," and other subjects, and he was now working on the subject of defective eyesight. Excellent work had been done by other general practitioners holding factory appointments; Dr. Prosser White of Wigan, for example, had written a standard textbook on industrial diseases affecting the skin. Change of employment was due partly to physical deficiency and not infrequently to defective eyesight.

Dr. HAROLD KERR (M.O.H. Newcastle-on-Tyne) said that inadequate attention was given in existing conditions to the supervision of the preparation of food in public restaurants, hotel kitchens, etc. These places were often not inspected, because with respect to them the position was ill-defined as regards the responsibility for inspection. The responsibility should be definitely settled and the relation of local authorities and their officers made clear and definite. A careful supervision of these places was of great importance.

Dr. MACKAIL (Lecturer in Public Health, Glasgow) pointed out the great anomalies as regards the powers of factory surgeons which at present existed; there was no power to walk through a factory and to reject an employee who was obviously ill. This was left to the employer. Where a monthly inspection was obligatory, as amongst workers in lead, mercury, etc., the management was discouraged from making intermediate inspections. The general practitioner should have the right of entry into factories. At present there was no right of entry into a lead factory until a person was certified as suffering from lead poisoning. There was no power or duty to follow up cases. With regard to the large labour turnover referred to by Professor Collis, it was possible that the same people were changing repeatedly. Each industry should carry its own wastage. No person should be allowed to start work without being instructed in the precautions that should be taken. In conclusion, he pointed to the need for correlation between the Workmen's Compensation Act and the Insurance Act.

Dr. DUNCAN (Factory Surgeon, Stafford) considered that the general practitioner could play a most important part and be a great power for good in factory hygiene. He believed that the reason for change of work was largely psychological. The general practitioner ought to familiarize himself with the industries of his district, and know the nature of the processes of each industry. He should lose no opportunity of obtaining by courtesy entrance into as many works as possible. By this means he would be able to treat his patients more intelligently and sympathetically. Provision should be made whereby convalescents could undertake light work whenever this was desirable.

Dr. MILLER (County M.O.H. Radnor) said that there was need for closer co-operation between the factory surgeon and the school medical officer, in order to secure continuity and to utilize the information obtained during school life. This might be effected through the Juvenile Employment Committee. The existing machinery should be improved with a view to greater simplification. Part-time consultants might, he thought, be employed with advantage.

The President (Sir THOMAS OLIVER) said that employers would be wise in their own interests if they allowed and encouraged medical practitioners to visit their works and to inspect the various processes carried on. Medical men would benefit considerably as a result of these visits and the information obtained therefrom. It was unwise to pay too much attention to patients' statements; cases were not infrequently certified as lead poisoning in which the symptoms were really other diseases; this was due to unfamiliarity on the part of the practitioner with the conditions in which lead poisoning was likely to occur. Those employed in brass works and other industries showed a remarkable capacity of acquiring tolerance to poisons. Thus young persons engaged in brass departments inhaled small quantities of carbon monoxide, and suffered from shortness of breath, but after a time, as tolerance became established, the symptoms became less marked.

Dr. INGLIS (Hebburn-on-Tyne) said that an experience of forty years as a factory surgeon had shown him that, where tact and, on occasion, "bluff" were exercised, there

was no difficulty in gaining admittance to factories. With regard to workers in lead, he had followed the practice of removing those who were apparently "run down" or in poor health to another part of the works. In this way loss of work and of wages had been successfully avoided.

Professor COLLIS said that the psychology of industrial unrest appeared to bear a definite relation to industrial mortality. Thus it was remarkable that in the recent strikes the strike ballots in the seven great coalfields were directly related to the mortality from accidents. The greatest numbers in favour of a strike were found in the areas having the greatest mortality, and the parallelism was almost exact. Laziness might well be psychological, but due to pathological causes.

Dr. F. E. WYNNE (M.O.H. Sheffield) moved, and Dr. KERR (M.O.H. Newcastle-on-Tyne) seconded, the following resolution, which was carried unanimously:

> That it be a recommendation to the Council of the Association to endeavour to obtain increased powers for local authorities with respect to houses let in lodgings.

LUMINAL CONTRASTED WITH BROMIDE IN EPILEPSY.

BY

F. GOLLA, M.D., F.R.C.P.,

PHYSICIAN TO ST. GEORGE'S HOSPITAL AND THE MAIDA VALE HOSPITAL FOR EPILEPSY AND NERVOUS DISEASES.

THE therapeutic value of luminal in the treatment of epilepsy has been recognized by a large number of American and German writers. The following observations record an effort to establish the relative efficacy of the luminal and the bromide treatment of epilepsy.

In any attempt to establish the value of a form of treatment which cannot pretend to rank as a specific cure certain difficulties are encountered necessitating the exercise of great caution. Every neurologist of experience is aware of the astonishing manner in which epilepsy undergoes spontaneous remissions and exacerbations. This difficulty necessitates the observation of a very large number of cases for a lengthy period before the new treatment is commenced, and the continuance of the experimental treatment for a considerable time. All cases due to traumatic or infective lesions must be rejected in order to avoid complication of the results by possible variations in the extent or intensity of the lesion.

The total number of cases that have been observed for a period of not less than eighteen months is 125. The patients were treated at the Hospital for Paralysis and Epilepsy, at St. George's Hospital, and at the Maudsley Hospital. All of them had been treated by bromides for periods extending from fourteen years to a minimum of six months. Since cases occur in which the mere suspension of bromide treatment may be followed by a period of improvement, in every case bromide treatment was suspended for a short period and the effects noted. In only one case was there a period of remission following suspension of the bromide treatment, and this remission lasted for sixteen days. Two other cases were unaffected by cessation of the bromides, and all the others showed signs of an increased severity of the malady. This sufficiently disposes of the possibility that any amelioration with luminal treatment might be referable to the mere suspension of bromides. Without much larger statistics than I have been able to gather, it is difficult to make any pronouncement on this alleged improvement of epilepsy on the cessation of active treatment, but its rarity is not incompatible with the view that such cases are merely those in which a spontaneous period of remission happens to have coincided with the disuse of bromides.

As to the intensity of the bromide treatment, with which the luminal treatment is compared, I will confine myself to the general statement that in every case such doses of bromide had been exhibited as appeared to reduce the fits to a minimum without causing any marked general disturbance.

When the results obtained by luminal treatment were collated, it at once became evident that the efficacy of the luminal varied greatly in cases afflicted with different degrees of severity. In our complete ignorance of the pathology of epilepsy it is impossible to hazard any opinion as to whether or not the same pathological process is at the root of epileptic crises occurring daily and those occurring at infrequent intervals, either in bouts or singly, but the effect of luminal on such different types of cases is so different that I have thought it expedient to group my cases empirically into classes which are determined by the frequency of the attacks. By this means a far more accurate picture of the efficacy of the drug is obtained than by the consideration of the unclassified results. It is necessary to add that no selective action on the different types of epileptic discharge could be verified.

I have then divided my cases into the following groups: Those suffering from diurnal fits; those suffering from fits more frequently than four times in a month of thirty days; those with fits occurring between once and four times in a month; those with fits occurring less than once a month; those with fits occurring in bouts of several at a time at intervals of not less than twenty-one days; and lastly, a small group of cases of traumatic epilepsy in which the lesion was of several years' standing. All the cases were carefully examined to exclude syphilitic origin, and if any cases with either a luetic, vascular, or traumatic pathogenesis have been unwittingly recorded the number must be practically negligible.

CLASS A.—*Diurnal Fits.*

The results of treatment of cases in this class may be summarized as follows:

No.	Age.	Period during which Fits occurred Daily whilst under Bromides.	Average Number of Fits during Past Three Months after not Less than a Year's Luminal Treatment.
1	36	Thirteen years	One in forty-five days.
2	42	Fourteen years	One in thirty-seven days.
3	19	Four years	One in seven days.
4	27	Eight years	One in ten days.
5	18	Two years	One in thirty-six days.
6	20	Six months	One in twenty-one days.
7	7	Three years	One in seven days.
8	10	Eighteen months	Daily; condition unchanged.
9	4	Ten months	Condition became worse under luminal.*

*After three months' trial put on bromide again; fits gradually diminished, now one in twenty-eight days.

These cases show such a startling superiority of luminal over bromide treatment that they merit some further comment. The first two cases are perhaps the most striking.

Case 1.

A woman who had suffered from hereditary epilepsy since her sixteenth year. I first saw her when a registrar at St. George's over fourteen years ago, and since then she has been under continual observation as an out-patient. Under full doses of bromide the fits occurred regularly once a day. On three occasions I endeavoured to stop the bromide treatment, but on each occasion the fits increased in frequency and severity to an alarming extent. During the past few years the patient has become increasingly depressed and stupid, and the face has been covered with acne. She was given luminal sodium in two-grain doses in the morning and four grains at night. From the second day after beginning luminal treatment the fits ceased, and for the ensuing ten weeks she was free from fits. She became much brighter and her general condition, both mental and physical, showed striking improvement. After ten weeks she had a series of fits on three successive days, and then remained free for three weeks. Her fits after eighteen months' treatment now average one in forty-five days, and can be said to be slight in nature.

Case 2.

A man who had been under my observation since 1907. Like the preceding case, he had daily fits whilst under bromide, and became very much worse when the drug was intermitted. His fits were, however, slighter than those of the first case, and he showed little trace of the effects of bromides. Treated with two grains of luminal thrice daily the fits ceased at once, and he did not again have an attack till two months later, when he had two fits in succession. His present average is one in thirty-seven days.

Both of these cases are liable to frequent attacks of *petit mal*, but they assure me that these attacks are not more frequent than they were under the bromide treatment. Both patients say that they feel infinitely better and brighter than when taking bromides. Cases 3, 4, 5 and 6 were, after some months' treatment with luminal, placed on bromide treatment for a fortnight. In all four cases the number of fits increased within two days, and I had to yield to their solicitations to discontinue the experiment. Cases 8 and 9 are two children, both mentally defective. Case 8 showed no improvement when treated with luminal, whilst Case 9 became decidedly worse. Some weeks after the luminal treatment was abandoned, and this child again put on bromides, she began to improve, and during the past three months has not had more than one fit a month.

CLASS B.—*Cases with more than Four Fits a Month.*

The results of treatment of cases in this class are recorded in the following table. Of the 51 cases, 4 were no better with luminal than with bromides, as evidenced by the number of fits, and 5 cases had an increased number of fits.

Table showing Average Incidence of Fits during Preceding Nine Months under Bromide Treatment, and during the last Three Months of a Year of Luminal Treatment.

No. of Cases.	Bromide Treatment.	Luminal Treatment.
3	15 to 17 fits a month—average 15	Average 3
2	10 to 15 " " " 12.5	" 7.5
16	7 to 10 " " " 9	" 6
30	4 to 7 " " " 5.5	" 4.5

CLASS C.—*Fits Occurring One to Four Times a Month.*

There were 29 cases in this class, with an average incidence of three fits a month during nine months under bromide treatment, and of 1.2 during the last three months of a year of luminal treatment. Eight of these cases showed practically no improvement, and one was distinctly worse when treated with luminal.

CLASS D.—*Fits Occurring less often than One per Month.*

There were 15 cases in this class. The average incidence of fits during nine months under bromide treatment was 0.8 a month, and during the last three months of a year of luminal treatment 0.9. Seven cases showed no improvement, and two had fits with slightly greater frequency.

CLASS E.—*Fits Occurring in Bouts of Several in Succession not oftener than Once a Month.*

Under this heading there were 13 cases. The number of fits in succession during nine months under bromide treatment averaged 4, and during three months under luminal treatment 5. Six cases showed no improvement as to frequency of fits; 3 were somewhat worse. The absolute numbers of fits occurring during a bout is seldom very reliable. The best interpretation of these results would probably be to consider that luminal showed no advantage over bromide treatment. Eight cases of traumatic epilepsy in which the lesion had occurred not less than five years previously were treated with luminal. Of these cases, 7 showed definite improvement under luminal, whilst one patient who suffered from fits occurring in bouts was unaffected.

A study of the results here recorded shows that 36 cases out of a total of 125 were either not improved or deteriorated under luminal treatment, whilst the remainder did better under luminal than under bromide. The cases most beneficially affected by luminal were those with fits occurring at frequent intervals, and the cases least affected were those whose fits occurred in bouts at considerable intervals of time.

The interpretation of these results is a matter of some difficulty; to make the experiment complete it would be necessary to know the frequency with which the fits would have occurred when the patients were observed for lengthy periods in an untreated condition, and this for obvious reasons was impossible. I hesitate to believe that luminal exercises a selective action on those forms of epilepsy in which the fits occur with the greatest frequency; it appears to be more probable that a class of epileptics exists who are more refractory to bromide treatment than others, such a class would obviously show the greatest number of fits when treated by bromides, at the same time these patients are not less susceptible to luminal than their fellows, and consequently it is with these cases that the drug shows its most marked effect.

The doses of luminal employed have rarely exceeded 6 grains a day of the sodium salt.* Using such small doses I have hitherto been unsuccessful in determining to what degree, if any, it undergoes change in the body. The only method so far available of recovering it from the urine is to shake it out with ether, and when the total weight recoverable in a twenty-four hours' specimen of urine does not exceed 6 grains it is futile to pronounce on the possible destruction of small fractions in the body. The sodium salt was administered on all occasions on account of its solubility, but there is little doubt that in the acid stomach it is converted into the insoluble acid.

It is the rapidity with which the insoluble acid is passed on to the duodenum and its relative dilution with the gastric contents that may, by varying the rapidity of absorption, be responsible for the occasional appearance of slight toxic symptoms such as giddiness and drowsiness. The earliest period after ingestion at which I have been able to demonstrate its presence in the urine is three hours.

The drug is, as a rule, well tolerated, and most patients found that they were far brighter and more cheerful after a change to luminal from bromide treatment. In twelve cases, however, the patients complained of giddiness and drowsiness. Five of these patients showed definite affection of the gait, reeling slightly as if under the influence of alcohol. By diminishing the dose of luminal I was able to secure eventual toleration in all but four patients, who complained so persistently of giddiness that the luminal treatment was suspended. Urticarial rashes appeared in two cases at the onset of treatment, but disappeared when it had been continued for a few days.

There has in no case been any signs of the formation of a drug habit, and suspension of the treatment has never given rise to any disturbance. There is a tendency in all cases for the number of fits to increase slightly after the first two months of treatment. I have refrained from increasing the strength of the dose given, as I wished to determine whether this tolerance was a progressively increasing factor, but I found little evidence of this. In a series of 20 cases the average number of fits per month after a month's treatment was 21; after two months, 30; after four months, 36; and after ten months, 32.

It is to be regretted that no English firm has been willing to undertake the manufacture of this important drug, which is at present only obtainable from Germany. The more toxic compound known as dial, which I have endeavoured to substitute for it, is only manufactured in the form of the insoluble acid salt, and the giving of boxes of pellets of a poisonous hypnotic to epileptic out-patients is a measure of doubtful expediency.

RECURRING DISLOCATION OF THE SHOULDER-JOINT.

BY

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CAPETOWN.

DISLOCATION of the head of the humerus from the glenoid cavity of the scapula occurs from congenital, pathological, and traumatic influences; with the two former categories we are not here concerned.

The initial dislocation from traumatism is usually very painful, not so much from the actual displacement as from the reflex muscular contractions, which occur in spasms of great severity, driving the head of the humerus against sensitive structures in the proximity. Once the reposition has been effected, prolonged abstention from

* Luminal is phenyl-ethyl-barbituric acid, a modification of veronal, an ethyl group being replaced by a phenyl radical. It is almost insoluble in water. The sodium salt is readily soluble.

violent movement is advisable. The integrity of the ruptured, or stretched, capsule and ligaments can hardly be re-established under three months, unless by soft, plastic repair tissue devoid of tensile strength.

If, from want of proper rest and adjustment of the injured capsule and ligaments while undergoing repair, or if, by reason of the severity of the primary traumatism, dislocation soon again recurs, those ligamentous structures which are concerned in retaining the bones in position are liable to become permanently elongated, leading to the condition of recurring dislocation.

This chronic disability is not usually painful but it is inconvenient, and when well established it takes place with annoying frequency, often on the most trivial occasion—for example, serving at tennis, throwing a cricket ball, brushing the hair over the occiput, washing the back, stepping unexpectedly off the kerbstone, stumbling in the dark.

The head of the humerus, we are taught by the anatomists, maintains its position by reason principally of the support of the circumjacent muscles. In rest and in gentle and limited movement this may be true, for the tonus of these muscles acts as a constantly approximating factor. In movements of wide range, however, or when the relaxed musculature, taken unawares, is put to sudden strain, the capsule acts as a check ligament, or as a conjoined series of check ligaments, and is indeed the essential feature in maintaining the opposition of the articular surfaces. If the capsule, with its special developments, the coraco-humeral and gleno-humeral ligaments, is too loose, or stretched, or torn, the more lateral attachments and elasticity of the muscles operating the joint, and the insufficient adjustment of the osseous contour permit an unusual degree of mobility of the humeral head in its articular seating.

This *a priori* statement, which is contrary to that generally accepted, that the integrity of the capsule is the prime factor in maintaining the bony elements of this joint in proper juxtaposition, receives support from the fact that in neuropathic affections of the shoulder-joint, as in syringomyelia, or in cervical tabes, the acute distension with mucous fluid leads to rapid relaxation of the capsule and dislocation, frequently apart from and prior to any absorption of bone; although admittedly there is often some degree of hypertonus of the local musculature from infringement of the centripetal sensory paths.

On the other hand, in the Erb-Duchenne type of palsy, or in gunshot wound of the neck involving the upper cords of the brachial plexus, dislocation does not occur, though the arm may fall one to two centimetres. This relative importance of the ligamentous and muscular structures seems to be equally true of most of the other joints.

The musculature of the shoulder, in addition to its tractive action, forms also a firm housing for the joint, except below. Here the capsule is unsupported, and hangs pendent between the teres minor and scapular head of the triceps behind and the subscapularis in front. In abduction it is taut, over what is now a linear aperture between the same muscles. The majority of dislocations take place primarily in abduction, and through this space, the head of the humerus being levered, or pulled, over the lower quadrant of the glenoid articular rim.

The textbooks consulted recommend that recurring dislocation of the shoulder should be treated by stitching up the torn capsule, tightening the loose area, or resecting the redundant part, in addition, of course, to the repair of any obvious bony deformity which may be present. As a rule this is not easy, and it is not always successful. Another type of operation has been devised to meet the exigency (Openshaw). In this the tendon of the subscapularis is severed, the capsule is opened, the head dislocated, and about half the articular surface sawn off in a nearly vertical plane. The opposing surface of the glenoid cavity is obliterated. This leads to fibrous union of the central portions of the articular surfaces, which, with active and passive movements, later develop into a short, strong ligament holding the bones in association. The conception of this operation is scientific, but it disables the joint for a long time. Furthermore, unless the patient applies himself with assiduity and fortitude to the vigorous after-treatment indicated, a firm fibrous or bony ankylosis remains, with very deficient mobility, though certainly dislocation will not occur again.

In my last five cases the following operation has been performed with entirely satisfactory results. It is devised on the principle of strengthening the suspension of the limb at the site and by means analogous to those of a normal joint.

Operation.

An anterior incision is made in the delto-pectoral sulcus, from the clavicle as far down, if necessary, as the insertion of the deltoid. This muscle is now well reflected, exposing the anterior and lateral aspects of the capsule and permitting digital access to the posterior. With the arm in abduction to relax the deltoid a drill of large size is driven antero-posteriorly through the humerus, medial to the tendon of the biceps and through or close to the insertion of the subscapularis tendon; this about the level of the middle of the articular surface of the head. The drill passes backwards horizontally and emerges through the great tuberosity behind. It perforates easily, as the bone, excepting the superficies, is of a loose cancellous texture. The diameter of this tunnel should be about 1 cm.

By inserting the finger between the deltoid and posterior part of the bone the drill can be felt emerging. Any vessels severed are tied and the wound temporarily covered. The capsule of the joint is not opened. A long incision is now made on the lateral aspect of the thigh, exposing the fascia lata for its full length. A strip of this fascia is excised, about 30 cm. (or 12 in.) long and about 4 cm. (or 1½ in.) broad. The fascia lata incision is sewn together and the thigh wound closed. The excised strip is now rolled or folded up into a compact cord and sewn with a running stitch of linen thread or silk into a firm ligamentum teres.

The shoulder operation area is again exposed. A silver wire with a loop, or a pliant probe, is used to draw a strong linen thread through the tunnel, and this in turn being fixed to the extremity of the artificial ligament pulls it antero-posteriorly through the bone. The arm must be abducted and rotated to give the maximum space between the deltoid of the humerus, otherwise manipulation is difficult and the posterior exit of the tunnel not of easy access.

A small incision is now made on the upper aspect of the clavicle lateral to the coracoid process, exposing the bone, from which the soft parts are freed. With a curved pair of pressure forceps passed in front of the clavicle and burrowed through the deltoid the posterior extremity of the artificial ligament is pulled up and slung over the clavicle. By again directing the forceps from the anterior incision through the tissues (avoiding the coraco-acromial ligament, which can be felt) and causing the forceps to emerge posterior to the clavicle, the artificial ligament is drawn once more into the original operation area. Both ends are seized in forceps, drawn taut (with the arm at an angle of 45 degrees from the side), overlapped, and sewn securely together with silk or linen thread.

Thus a firm figure of 8 ligament is made to suspend the humerus through, approximately, its axis of rotation in the movement of abduction, to a fixed osseous buttress above. This ligament interferes in no wise with rotation or excursions of normal limitations. While permitting rolling of the articular surface it prevents descent of the head, which is the first tendency towards ordinary dislocation whether due to paretic musculature or stretched ligaments.

Any looseness of the capsule (and this cannot often be demonstrated) is repaired by taking in a reef, usually in front and below. This can be done by raising a ridge in the line of the fibres, transfixing its base with a continuous mattress suture of linen thread, further strengthened by a running continuous suture along the summit of the ridge.

The operation is considerably abbreviated by employing two or three strands of strong silk as the suspensory material. This was done in one case with equally good result. There is, however, a possibility that the thick alien material may give trouble in the course of time. The arm is well supported in a sling and rested for six weeks. Gentle movement only is advisable for three months.

Note: This paper was read on October 29th, 1920, at a British Medical Association meeting in Cape Town. The cases and operations referred to were performed and recorded on the clinical history cards and operation books of the S.A. Military Hospital, Richmond, Surrey, in 1917-18-19, and in the Wynberg Military Hospital, Cape Province, in 1920. By the mail from Europe of about November 8th, 1920, an article in the *Zentralblatt für Chirurgie* delineates a somewhat similar operation recently successfully tried on one case, an epileptic.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PRURITUS ANI.

The subject of pruritus ani was recently discussed before the subsection of Proctology of the Royal Society of Medicine, and various methods of treatment were then suggested. Dr. Finzi alone, among the speakers, is reported to have said that "high frequency applied with a vacuum electrode often gave considerable relief, and this was a treatment that could be continued indefinitely, if applied with care."

After many years of experience in the use of high frequency currents in various conditions, I have no hesitancy in agreeing with Dr. Finzi's statement. Personally, I obtain the best results from a solid metal electrode introduced within the rectum. The treatment does not need to be "continued indefinitely"; on the contrary, a beneficial and permanent result is, as a rule, speedily obtained. I would suggest, therefore, that before drastic measures are adopted, a trial should be given to the application of high-frequency currents. By this method not only may the pruritus be relieved, but haemorrhoids or fissure, if present, may be cured at the same time.

A further advantage of the high-frequency treatment is that it can be conducted without interfering with the patient's ordinary affairs, and its application can cause neither pain nor discomfort.

Glasgow. W. F. Somerville, M.D.

RUPTURED ECTOPIC GESTATION AND UNINTERRUPTED UTERINE PREGNANCY.

On November 10th, 1919, I was asked to see a married woman, aged 29, a multipara, in consultation with Dr. W. Braach. She had that day been seized with acute abdominal pain, and had a very rapid pulse and faintness. She had missed two menstrual periods. After removal to hospital her general condition improved, and the acute symptoms passed off, but there remained a well-defined swelling in the left iliac region which was tender to the touch, and she had an occasional slight rise of temperature.

On December 4th I operated, and found the peritoneal cavity full of fresh blood which came from a tear in the left Fallopian tube; there had evidently just occurred a second rupture of the tube, perhaps on removing her from the ward to the operating theatre. The left Fallopian tube was ligated and excised, and the left ovary was removed, as it was cystic. The excised tube contained a foetus of about six weeks to two months. The uterus at the time seemed large, as it usually does in these cases.

The patient made an excellent recovery from the operation; unmistakable signs of pregnancy soon manifested themselves, and she was delivered of a healthy boy on June 10th, 1920. This variety of twin pregnancy is, I believe, of comparative rarity.

Antigua, B.W.I. Cecil M. Rolston, F.R.C.S.E.

Reviews.

THE HISTORY AND METHOD OF SCIENCE.

The second volume of *Studies in the History and Method of Science*,[1] edited by Dr. Charles Singer—an important and imposing work—is a tribute to the enthusiasm and efficiency of the able editor. Most appropriately, it is dedicated to the memory of Sir William Osler, who saw the first instalment of these *Studies* through the press, and had the success of this project so much at heart. The fifteen articles in the present volume cover a wide field; the possibility that in the first volume undue prominence was given to mediaeval studies has been borne in mind, and more space has been devoted to the evolution of the mathematical and exact sciences. In the preface the recent evidence of the world's interest in the history and philosophy of science is briefly sketched, and a plea is advanced for a central institute and library in this country to promote systematic investigation into the historical documents of science.

In a scholarly and beautifully illustrated article of a hundred pages Dr. Singer points out that science, which is said to be the conscious collection of data and the conscious formulation of theories, cannot be traced with certainty earlier than the speculations of the Ionian philosophers of the sixth century B.C., the Hippocratic writings being the first available in a substantial form. Comparison of the course of Greek and modern science shows that from the downfall of Greek science in about the third century A.D. there was a somnolent interval until 1543, when Copernicus's *De Revolutionibus Orbium Celestium* and the *De Fabrica Corporis Humani* of Vesalius appeared, and that, though anatomists had been active for some centuries, as shown by dissection of animals at Salerno in the eleventh century, effective advance in zoology hardly began before the second half of the sixteenth century. Greek science originated among a group of philosophers, and there was little to check direct observation or the experimental method of active extension of knowledge; modern science at its beginnings was much hampered by the priesthood and tradition, but the extension of knowledge began before the revival of the Greek language. The Greek intellect often accepted data without the laborious verification modern science regards as essential. The contrast between the ancient and the modern methods of setting out biological conclusions is illustrated by a striking account of the investigation of the interesting generative processes of the Cephalopods. In spite of errors work on modern lines has shown a steady advance towards a true conception of the phenomena, because each observer recorded his actual results in a form available to criticism, whereas Aristotle noted his final conclusions only, without any indications of the observations on which they were based. At the same time justice is done to Aristotle's genius in the classification of animals and in foreshadowing the doctrine of evolution by his theories of the development of the individual. The Greeks studied living things in order to understand themselves, but paid more attention to animals than to plants, which Theophrastus, the father of botany, in the sense that his writings are the earliest extant, frankly admitted were studied mainly for their medicinal uses. The father of plant illustration was Crateuas in the first century B.C., and some fragments of his drawings are reproduced from the famous Julia Anicia MS. Professor Arthur Platt, after a struggle with the difficulties and contradictions of the obscure text, contributes a new interpretation of Aristotle's description of the heart. In an article based on much research—the Asclepiadae and the Priests of Asclepius—Dr. E. T. Withington, after a careful analysis of the data, brings forward some additional reasons for the rejection of the view that Hippocratic medicine originated in the health temples. Mr. J. M. Child's technical essay on Archimedes's "Principle of the Balance and some criticisms upon it" has been written in response to Ernst Mach's criticism of the work of Archimedes.

Professor H. Hopstock writes authoritatively on "Leonardo da Vinci as an Anatomist." He shows that Leonardo at first relied on the existing works of Galen, Avicenna, Mondino and Benedetti, and attempted to adopt their teaching, but finding them inaccurate began cautiously and tentatively to depend on his own observations; eventually he emancipated himself entirely from tradition and became the greatest naturalist of the fifteenth century. He corroborated his physiological investigations by physical and mathematical tests, studied embryology in animals and in man, dissected more human subjects and gave far more accurate descriptions than any of his predecessors, and came near to, but did not succeed in, anticipating Harvey in the correct conception of the circulation. Mr. J. J. Fahie's essay on the scientific work of Galileo is a review of the national edition of Galileo's works in twenty large octavo volumes edited by Professor Favaro, who has devoted forty-four years to this study. Although Galileo was not much interested in medical studies, and was soon attracted away from them by the lure of mathematics and physics, one of his first discoveries, the synchronism of the oscillations of the pendulum, was made by timing the excursions by his pulse; this was the earliest instance of accurate measurement of any bodily function, as well as the basis of the modern clocks; it was long used by physicians under the

[1] *Studies in the History and Method of Science.* Edited by Charles Singer. Vol. ii. Oxford: At the Clarendon Press. 1921. (Pp. xxii+559; 55 plates; 80 illustrations in the text. 48s. net.)

name of pulsilogia. Galileo's readiness to criticize dogmas, especially the dictates of Aristotle, early gained him the nickname of "the Wrangler"; his activities were prodigious: he invented the telescope, the microscope, and the air thermometer; his law of falling bodies at once led to much physical discovery; it was his astronomical researches and his support of the Copernican theory that brought him under the ban of the Inquisition. In an article on the steps leading to the invention of the first optical apparatus Dr. C. Singer, while tracing the germ of the origin back to Pliny, gives reasons for regarding Galileo as the effective discoverer of both the telescope and the microscope.

In his contribution on "Mediaeval Cosmology and Astronomy" Dr. J. L. E. Dreyer points out that the chief reason why few students are attracted to these subjects is that many of the interesting manuscripts of the Middle Ages have not been printed, and that for this reason Duhem's great work recently published in Paris is especially welcome. Roger Bacon was thoroughly acquainted with the Greek and Arabian astronomical writings, and seriously devoted himself to this line of work when he went to Paris in 1235. The next article is appropriately on "Roger Bacon and the State of Science in the Thirteenth Century," by Mr. Robert Steele; that century, which was surging with unrest and criticism of established authority, was characterized by the introduction into Western Europe of Aristotle's works, the spread of knowledge being effected through three distinct channels —through the universities, especially those of Paris and Oxford; through the schools of religious houses; and through individuals and small groups of scholars. Medicine received a fresh stimulus from the Sicilian Emperor's insistence on the value of dissection, and from the translation of Avicenna's work, which dominated medical teaching till the seventeenth century. The relations of Bacon to Albertus Magnus are described, and Mr. Steele remarks that Roger Bacon stands out prominently as the first English leader of scientific thought; his writings, which have been much neglected, should, he urges, be collected and published.

Mr. F. C. Conybeare's translation of four Armenian tracts on the structure of the human body will assist the occidental reader to form an impression of the character of mediaeval Armenian scientific ideas. A sketch of the history of palaeobotany has been contributed by the late Mr. E. A. Newell Arber. In his article on the history of anatomical injections Mr. F. J. Cole shows that the rapid acceptation of this method and the exaggerated view of its ability to solve all the problems of anatomy and physiology was soon followed by neglect, so that it ceased to be a means of research and became a matter of almost purely historical interest. Dr. Schiller's disquisition on "Hypothesis" is followed by a paper on "Science and Metaphysics" read some years ago to a philosophical society in Oxford by the late Mr. J. W. Jenkinson. Mr. F. S. Marvin, writing on "Science and the Unity of Mankind," discusses first the abstract question, How far is the nature of science essentially social? and then the historical or *a posteriori* inquiry, How far has the growth of science been accompanied by a closer knitting up of the world as one community? He decides that the unity of the future will be largely dependent on international scientific associations, and that in any teaching of history favoured by the League of Nations the history of science should have a prominent position.

Although it is impossible to give any consecutive review of the valuable studies contained in this volume, enough has perhaps been said to stimulate the reader to consult its carefully thought out and scholarly essays.

DISEASES OF INFANCY.

DR. G. VARIOT,[2] in his *Traité pratique des maladies des enfants du premier age*, carries on a celebrated French tradition. His book is in the direct line of Parrot's *L'Athrepsie* (1879), and of Billard's classic, *Traité des maladies des nouveau-nés, et des enfants à la mamelle* (1818). He, however, extends the age period dealt with to two years, because a large number of children over a year, by the standards of height and weight, really belong to the period of infancy.

In these eleven hundred large pages the author gives the fruit of his long clinical experience of infants. The first and perhaps the best part of the book deals with infant hygiene, breast and artificial feeding, and the disorders of digestion in their various types and degrees produced by errors in feeding. On these matters Dr. Variot writes with acknowledged authority, and he succeeds in imparting interest to a subject that is often made dull as well as obscure. It is a great advantage to have collected here and vigorously expounded the views and doctrines that have come to be associated with his name, such as the importance of measuring infants (pediometry), and of guiding the feeding by the figures of height as well as weight; the greater danger of underfeeding than of overfeeding; the faulty use of undiluted or too highly diluted milk; the great value of superheated and highly sweetened milk; the superiority of cane sugar to milk sugar; the use of *x* rays in young infants; the distinction between atrophy and hypotrophy. He will not perhaps carry conviction on all these points, but he always writes from his own clinical experience, and with clearness and confidence, and it is these qualities that give the precious quality of interest to his narrative.

The remaining and larger part of the book deals with all the clinical conditions met with in infants and young children up to 2 years of age. The account of congenital diseases and defects is especially complete, and includes conditions rarely described in the ordinary textbooks.

Dr. Variot has been distinguished as an organizer as well as a clinician. Early in his career he took an important part in effecting hospital reforms in Paris, as a result of his study of the London hospital system. He then struck out an entirely new path in his foundation of the milk dispensary, the famous Goutte de Lait of Belleville, a model which has now been copied all over France and widely outside. A further step was the formation of his Institute of Puericulture, where courses of instruction in infant hygiene and preventive medicine are given both to medical students and to the mothers attending his infant clinics. A short account of this administrative machinery is given in the book. But they do not require the assistance of a book; they have their own solid corporate existence, and they may well endure longer than the book. Together, dispensary, institute and book, form a triple crown of achievement, and they fairly entitle Dr. Variot to be called the pioneer of the child-welfare movement in Europe.

[2] *Traité pratique des maladies des enfants du premier age.* Par le Dr. G. Variot, Médecin de l'Hospice des Enfants-Assistés, et de l'Hôpital Notre-Dame de Perpétual Secours, avec la collaboration de MM. le Dr. Pironneau et le Dr. Emile Grandjean. Paris: Librairie Octave Doin. 1921. (Imp. 8vo, pp. 1165; 88 figures. Fr.75.)

X-RAY DIAGNOSIS IN DISEASES AND INJURIES OF BONES.

Diseases and Injuries of the Bones and Joints, and their differential diagnosis by means of the Roentgen rays, is one of a series of monographs on special *x*-ray subjects which is in process of production by various specialists in the United States. The present volume, by F. H. BAETJER, M.D., Associate Professor of Roentgenology at the Johns Hopkins University, and C. A. WATERS, M.D., Instructor of Roentgenology at the same University,[3] is the considered result of their joint observations made in the clinic of the Johns Hopkins Hospital, and is the more valuable by reason of the fact that it is entirely based upon personal work and experience. Technique is not dealt with at all, and the preface declares that the object of the book is to show that roentgenology is not a picture process but a medical procedure based upon careful analysis and logical deduction from the shadows observed upon a plate and the translation of these shadows into pathological terms.

The scope of the book and the ground covered may be estimated from the headings of the various chapters. A short introduction is followed by a full account of the normal bone appearances both in adult life and in the epiphyseal stages of bone development; here the importance of an accurate knowledge of the normal *x*-ray appearances is emphasized. Following this comes the main portion, divided into chapters upon fractures of the upper extremity, fractures of the lower extremity, congenital

[3] *Diseases and Injuries of the Bones and Joints.* By F. H. Baetjer, M.D., and C. A. Waters, M.D. London: H. K. Lewis and Co., Ltd. 1921. (Roy. 8vo, pp. 367; 333 figures. £3 10s. net.)

dislocations, acquired dislocations, bone infection, joint lesions in children, joint lesions in adults, bone tumours, the spine, abnormalities, and dystrophies. Again and again great stress is laid by the authors on the importance of a complete knowledge of normal bone formation and growth, and the variations which may be expected at different times of life. The importance of this knowledge is not only apparent in reading the chapters upon fractures and dislocations, but becomes even more obvious when bone tumours are discussed. The importance of the nutrient canal in bone tumours is pointed out, as in metastatic malignancy it is by the blood and lymph vessels entering the bone through this canal that the infection is carried and the site of the metastasis decided. Further, it is recommended that in analysing bone tumours four points should be taken as forming the basis for classification—1, the origin of the tumour; 2, the presence or absence of bone production; 3, the condition of the cortex; 4, the invasion. This chapter on bone tumours is decidedly good, and one of the most important and original; it is also sufficiently illustrated.

Perhaps the weakest part of the book is that which deals with abnormalities and dystrophies; it suffers from over-compression, and in any future edition should be revised and expanded. A more serious criticism is that whilst the illustrations are numerous and distinctive, in the large majority of cases they are not of the highest technical excellence, and the reproduction leaves very much to be desired.

As a textbook on the subject, and as a reference book, the volume fills a distinct gap in *x*-ray literature, and should prove of much use not only to experts in radiology but to the medical profession generally.

NOTES ON BOOKS.

THE current issue of the *Biochemical Journal* contains several papers on nutrition and vitamins; among them are a preliminary note on the synthesis of vitamin B by yeasts by Professor A. Harden and Dr. S. S. Zilva; a paper by Zilva, Golding, Drummond, and Coward on the relation of the fat-soluble factor to rickets and growth in pigs; another by G. M. Findlay, from the Royal College of Physicians Laboratory, Edinburgh, on the effects of an unbalanced diet in the production of guinea-pig scurvy; and a fourth on the influence of free fatty acids in the intestinal contents on the excretion of calcium and phosphorus, by S. V. Telfer, from the Institute of Physiology of the University of Glasgow.

A new number of *Brain* appeared on August 19th; it contains an article by Mr. Percy Sargent on lesions of the brachial plexus associated with rudimentary ribs; two papers, one by J. L. Birley and L. S. Dudgeon, and the other by W. E. Gye, on disseminated sclerosis (Dr. Gye's conclusion, it may be noted, is that disseminated sclerosis is probably an infectious disease, and that the virus may sometimes be found in the cerebro-spinal fluid); a report by Professor Marinesco on a case of myoclonic encephalomyelitis of malarial origin; and a paper by Professor J. T. Wilson, from the Anatomical Department of the University of Cambridge, on the double innervation of striated muscle.

The last two mails from India have brought us three copies of the *Indian Journal of Medical Research*—those for January, April, and July respectively. The January number contains reports of an experiment in the eradication of plague infection carried out at Poona by Major J. C. G. Kunhardt and Assistant Surgeon G. D. Chitre, and on malaria in Mesopotamia by Major S. R. Christophers, C.I.E., and Captain H. E. Shortt, I.M.S. The issue for April contains a series of papers, admirably illustrated, by Major W. S. Patton, director of the Pasteur Institute of Southern India, and Subassistant Surgeon Sundara Rao, of the same institution, on certain flagellates, and Lieut.-Colonel Gill, chief malaria medical officer, Punjab, contributes a long paper on the meteorology of malaria. Other papers in the same issue are by Major H. W. Acton and Major P. M. Rennie and a number of other workers on various forms of malaria. In the issue for July Major J. A. Sinton gives a description of larvae observed in certain cases of myiasis in India and Persia, Captain R. H. Malone relates methods of producing influenza vaccine and pneumococcus vaccine on a large scale, and Dr. M. B. Soparkar has two papers on cercaria.

It is often difficult to estimate the educational possibilities of mental defectives and to determine the form of instruction and training from which they may reasonably be expected to derive benefit. A recognition of these difficulties has led Dr. MARTIN W. BARR, Chief Physician, Pennsylvania Training School for Feeble-minded Children, and Professor E. F. MALONEY, Professor of English, Girard College, to write conjointly a volume entitled *Types of Mental Defectives*.[4] It is not a textbook; the practical aim the authors put before themselves was to provide those beginning work among the feeble-minded with data enabling them to map out a course of training suitable for the various grades of defectives. Much needless effort may easily be expended in the training of a child in directions in which it is incapable of making progress, and any special aptitudes it may have thus remain undeveloped. One chapter is devoted to each type of defective. A preliminary account of the general characteristics and possibilities of development is given, followed by descriptions—diagnosis, family history, and notes of progress or retrogression—of a number of illustrative cases. In order to make each type readily recognizable a photograph of each case is reproduced. The volume will be found especially useful to teachers in special schools, nurses in institutions for defectives, and secretaries and workers in social services connected with the feeble-minded.

The Art of Life, as Revealed by Poets, Mystics, and Philosophers, consists of four lectures given by Mr. A. F. CROSS,[5] who is professedly not a trained theologian, to the patients and staff of the industrial sanatorium at Bramcote Hill, Warwickshire. It is dedicated to Dr. P. W. Edwards, the medical superintendent, who in a short foreword insists on the importance of understanding the psychological needs of the tuberculous patient. The four addresses on "The Origin of Poetry," "The Mystic Way," "The Teaching of Philosophy," and "Life's Mystery and Glory," are serious in tone but are brightened by literary and historical allusions. The author's words may be quoted: "The only object I have in view is to lead you down pleasant by-paths of knowledge until you come at last to a beautiful Temple wherein the indestructible Spirit of Man dwells harmoniously in contemplation and worship of its Highest Good."

[4] *Types of Mental Defectives.* By Martin W. Barr, M.D., and E. F. Maloney, A.B. London: H. K. Lewis and Co., Ltd. 1921. (Roy. 8vo, pp. ix+179; 31 plates containing 183 illustrations. 16s. net.)

[5] *The Art of Life, as Revealed by Poets, Mystics, and Philosophers.* By Albert Francis Cross. London: C. W. Daniel, Ltd. 1921. (Crown 8vo, pp. 64. 2s. net.)

APPLIANCES AND PREPARATIONS.

DR. WALTER J. RONAN (London, W.) has designed a urological basin which he finds useful in the treatment of urethritis and cystitis when irrigation is required. It fits firmly between the thighs without causing undue pressure on the posterior urethra, which sometimes occurs when other appliances of the same nature are used. Flanges cover the inner surface of the thighs, and no splashing or leaking over the sides can occur. It will hold more than three pints of fluid, and therefore does not require to be emptied during treatment. It is made of enamel iron, and therefore can be sterilized by boiling. It is sold by Mr. J. H. Montague, 69, New Bond Street, W.1.

Shadowless Light for Surgical and Laboratory Work.

A new lamp for surgical and laboratory work has been designed by Barbier, Benard, and Turenne, in France, and introduced in this country by Major J. P. Ashley Waller, who has it on view at his office at Audrey House, Ely Place, London, E.C. The advantages claimed for it are that the shadows cast on the table by the head and hands of the operator, are almost completely eliminated, and that the heat generally present with lights of high candle-power is greatly diminished. The lamp, which is suspended from the ceiling by adjustable gear, consists in the first place of an ordinary 50 c.p. half-watt filament, which is fitted in the centre of a reversed saucer of sheet steel, some 30 or 40 in. in diameter. Immediately around the lamp is a cylindrical prismatic lens, so designed that all the rays from the filament, except those issuing vertically downwards, are collected and reduced to a series of radial horizontal rays. Around the rim of the saucer or shield are a number of small silvered reflectors placed at such an angle that these horizontal rays descend from them to form a focal patch of intense light about 18 in. in diameter on a surface 36 in. below the lamp. A toughened glass screen intercepts the greater part of the heat, and also protects the mechanism from dust. The result of these arrangements is that a person standing at the operating table or the laboratory bench can take up any position without finding himself embarrassed by his own shadow, and also can do his work without being unpleasantly affected by heat. Another ingenious device with this "scialytic" lamp, as it is called, is a focussing tube fitted beside the lamp so as to secure accurate adjustment.

THE CENSUS OF ENGLAND AND WALES.

THE Preliminary Report by the Registrar-General of England and Wales on the 1921 Census[1] was published on August 24th. It is divided into three parts; an introduction by the Registrar-General containing a description of the history of the enumeration is followed by statistical notes on the census prepared from the summaries provided by local officers, and this by the actual figures, arranged in ten tables, which effectively display various important points in the census.

The census schedule which was adopted differed substantially in certain respects from that of 1911. In view of the increasing importance for many administrative and public purposes of statistics regarding the extent of the burden of dependency upon different sections of the community, an inquiry was added as to the number and ages of children under 16 (including an inquiry as to orphans). An inquiry as to place of work, which was felt to be of great value for transport, housing, and general industrial purposes, was also added. On the other hand, it was decided to omit the inquiry as to "infirmities" included in previous censuses, in view of the fact that reliable information upon these subjects could not be expected in returns made on behalf of the afflicted individuals. Further, it was concluded after careful examination that the "fertility" inquiry of 1911 (as to duration of existing marriages and the number of children born of such marriages) could be omitted in 1921, notwithstanding its importance, with less disadvantage than either of the new inquiries proposed, particularly in view of the long range covered by the 1911 inquiry, and of the fact that the wealth of material which it provided had not been completely exhausted.

The preliminary report shows that the total population of Great Britain is now 42,767,530, an increase on the figures for 1911 of 1,936,134; of this increase, 1,633,240 is in England, 181,510 in Wales, and 121,384 in Scotland. For the whole of Great Britain the increase was at the rate of 4.7 per cent., which is the lowest rate of increase yet recorded, the increase in the previous intercensal period being 10.4 per cent., which was lower than the rate of any previous decade. The population of England and Wales combined was 37,885,242 persons, of whom 18,082,220 were males and 19,803,022 females, the excess of females over males being therefore over 1,720,000, which added to the excess of over 100,000 in Scotland, gives a total excess of females of nearly two millions.

The Administrative County and City of London shows a decline in population of 38,436, the total being 4,483,249, as against 4,521,685 in 1911. Fifteen of the metropolitan boroughs show increases, while thirteen of them, and the City, have declined; the greatest increase, both in actual numbers and in rate, was in Woolwich, which increased by 19,027, or 16 per cent., while the most serious decline in numbers was in Stepney—30,066, or a decrease of 11 per cent. The greatest rate of decrease is, however, shown by the City, where a fall of 5,951 in the population has reduced it by 30 per cent. Islington, with 330,028, has the largest population among the metropolitan boroughs, though Wandsworth, with 328,656, is rapidly overtaking it; Holborn has now a population of only 42,796, and the City of 13,706. The population of Greater London is 7,476,168, an increase of only 3.1 per cent., as compared with 10 per cent. in the preceding intercensal period. The population of the great towns according to size is:

Birmingham ...	919,438	Newcastle-on-Tyne	274,955
Liverpool	803,118	Nottingham ...	262,658
Manchester ...	730,551	Portsmouth ...	274,343
Sheffield	490,724	Stoke-on-Trent ...	240,440
Leeds	458,320	Leicester	234,190
Bristol	377,061	Salford	234,150
West Ham... ...	300,905	Plymouth	209,857
Hull...	287,013	Cardiff	200,262
Bradford	285,979	Croydon	190,877

Of the towns with over 50,000 inhabitants the greatest proportional increases are shown in Blackpool 64 per cent., Southend-on-Sea 50 per cent., Hendon 44.3 per cent., Coventry 20.6 per cent. The greatest decreases are shown in Blackburn 4.8 per cent. and Bury 4.4 per cent.

[1] Cmd. 1485. To be purchased through any bookseller, or directly from H.M. Stationery Office. (Price 1s. net.)

The date of the census, however, which was postponed from April 24th to June 19th, must have had a considerable effect upon certain of these figures, for it is difficult not to associate decreases in Blackburn, Bury, and several other large Lancashire towns, with the enormous increases shown for Blackpool and other holiday resorts. Attention has already been called to this point by the medical officer of health for Blackburn in his report, and the unusually fine weather in June doubtless caused a large proportion of the population to take holidays earlier than usual. On the other hand, it would hardly be fair to most seaside resorts to make a census of their populations in midwinter, and their mean population may not have been, in spite of the facts mentioned, affected very greatly.

The general rate of increase in England and Wales for the county boroughs was 6 per cent., for the municipal boroughs and urban districts 5 per cent., and for the rural districts 4 per cent.; the percentage of rural population to urban has declined from 21.9 to 20.7 per cent. The Registrar-General does not, however, appear to consider that rural districts are becoming more depopulated, but rather that the populations of urban districts are increasing, without the actual numbers of the rural population being affected.

The report shows that the population of the Isle of Man had increased to 60,238 or by 15.8 per cent., while that of Jersey had fallen to 49,494, a decrease of 4.6 per cent., and that of Guernsey to 40,120, a decrease of 10.8 per cent.

In the Indian Empire the population has risen by nearly four millions to 319,075,132; in the Australian Commonwealth it had risen by nearly a million to 5,426,008; the European population of the Union of South Africa had increased by nearly 150,000 to 1,521,635; while New Zealand, not including the Maori population, showed an increase of over 200,000 to 1,218,270.

These figures are comparable with such recent census figures of foreign countries as are available. Switzerland has shown an increase of 3.4 per cent. in ten years, against 13.2 per cent. in the previous decade; the decrease in the growth of the population of this country is the more remarkable since it was not affected by the war. France —including the three new Rhine provinces—has a population of 39,194,550, which may be compared with the population (including the population of Alsace-Lorraine) in 1910, of 41,476,272, showing a decline of 5.5 per cent. In Sweden, the population at the end of 1920 was 5,904,292, an increase in ten years of 8.7 per cent.; this was a greater increase than in the previous intercensal period, when it was 7.5 per cent. The population of the United States is now 105,710,620, an increase of 14.9 per cent. as compared with an increase in the previous decade of 21 per cent. Japan (Japan proper, not the Japanese Empire) has a population of 56,000,000 in round figures, an increase of 13 per cent. since 1908.

The figures comprised in the present report are provisional, relating solely to the number and sex of the population, and it is too early to draw any deductions of real importance from them or to do justice to the numerous points of interest which emerge. The great events of the last decade cannot fail to impress a character of uncommon significance upon the results of this census, whether they be regarded merely as records of the passage of the war or as a source of enlightenment upon the many problems which the war has bequeathed to this country.

RED CROSS WORK IN PEACE.

THE Joint Council of the Order of St. John and British Red Cross Society came into existence on September 4th, 1919, for the purpose of organizing Red Cross work in peace. It will be remembered that on the outbreak of war the two societies at once agreed to form a Joint Committee, and from that time the differences which had arisen between the two organizations were composed, to the immense advantage of the nation. One of the chief lessons of the war was the need for a single national authority to co-ordinate voluntary agencies and encourage and train voluntary workers.

Although, as we have said, the Joint Peace Council was set up in the autumn of 1919, its active work did not begin till the early days of the following year. Thus the

first report of the Council deals with the work accomplished from January, 1920, until the end of March, 1921. The work of the Joint Council falls into two sections: (1) The continuance of the various departments of the Joint War Committee dealing with sailors and soldiers and discharged men of His Majesty's Forces, and (2) the new departments set up to carry out the peace work of the Order of St. John and the British Red Cross Society. The money for the first of these sections is found by the Joint War Finance Committee, but for the programme of the second section reliance has to be placed on money collected in various ways since the armistice for this special work.

The report is a volume of about 100 pages. It contains a list of members of the Joint Council and of the nine committees and subcommittees by whom the work is carried out; a foreword, signed by the chairman, Sir Arthur Stanley; a series of departmental reports; the report of the Finance Committee, with a statement of accounts; and three appendices, the second of which advises a scheme of procedure for County Joint Committees.

In dealing with the many questions that arise in connexion with hospitals, clinics, the supply of medical stores, and other related matters, the Council has had the services of Sir Napier Burnett, M.D., who was appointed Chief Executive Officer. In this position he is responsible both for the administration of the Council's affairs and the initiation of new branches of work. His activities under the second head have included the drafting of a comprehensive system of preventive work for submission to the Ministry of Health, and it is recorded that in the main his proposals have been approved by that Ministry. The field of prevention is large, and many workers who gave valuable voluntary aid to the Government services during the war might be employed in it with advantage to themselves and the community. Having regard to the increase of public interest in such of its departments as those dealing with child welfare and tuberculosis, the Council is hopeful of getting in future enough support to enable it to continue and expand the programme already laid before its workers.

The report on auxiliary hospitals for officers states that during the period under review 16,194 officers were assisted through this department. The most important part of the work has been the provision for tuberculous officers at home and abroad. The Emergency Help Committee turns its attention mainly to the organization of emergency relief for sick and disabled ex-service men. The Joint War Finance Committee set aside £100,000 for the assistance of such men who were in distress in consequence of the war, and the Joint Council undertook the responsibility of administering this grant. The Committee is satisfied that the large majority of cases in which grants have been made were cases of genuine distress within the scope of their regulations. County directors are generally agreed that this relief work is some of the best Red Cross work that has ever been undertaken in this country, and has mitigated to a considerable extent sickness, suffering, and distress among ex-service men arising out of the war.

Special reference has been made in these columns to the work of the Home Service Ambulance Committee, formed to establish a motor ambulance service in England, Ireland, and Wales, which will afford means for rapidly and easily conveying the sick and disabled—especially those in rural areas—to the point where curative treatment could be applied most efficiently. In the report a chart is given showing the position of ambulance stations at the end of last year, by which time the number of ambulances at work was 273. As might be expected with such an entirely new service, it was only by degrees that the fullest advantage began to be taken of the ambulances. Last year the total number of cases carried was 38,260, and the mileage covered by the ambulances was just over 460,000. In the first quarter of this year the number of cases carried was 11,393. During the second quarter ten new ambulance stations were established in various parts of England. The scheme has now been at work two years. In the first year 20,000 cases were carried; in the second, with only twenty-seven more ambulances in service, approximately twice as many cases were carried. It is interesting to note that the Danish Red Cross Society instituted a similar ambulance service in Denmark a year ago. The service has been much appreciated and will be extended.

The report refers to the two surveys of voluntary civil hospitals in England and Wales (excluding London) carried out by Sir Napier Burnett as Director of Hospital Services, the results of which have been given in full in our columns.

The collection formed under the direction of the Museums Subcommittee by Lieutenant-Colonel F. S. Brereton, R.A.M.C., will remain on view in the Imperial War Department of the Crystal Palace, Sydenham, until a more permanent place has been decided upon. It comprises 121 pictures, three pieces of sculpture, four large models and 30 trophies, and models of a hospital ship and a motor launch. During the fifteen months covered by the report the Provisional Limbs Dépôts made 2,873 limbs for above and below knee amputations. The Ministry of Pensions has changed the system of issue of artificial limbs, and at its request the provisional limbs department of the Council has established dépôts at certain fitting hospitals; another dépôt has been established near the National Diamond Factories, Brighton, which is supplying not only the factories but the whole of the Sussex regional area of the Ministry of Pensions and the Lady Dudley's hospitals at Brighton. It should be explained that the Ministry of Pensions desires all pensioners to possess a fibre provisional limb to act as a slipper or reserve in case of temporary breakdown of the ordinary limb. It is to meet this need that the Council has established the dépôts mentioned. The policy of buying in bulk for the supply of medium sized and smaller hospitals and institutions has been continued and a considerable saving effected. The financial statement shows a balance of income over expenditure of £51,116; the greater part of the income was derived from grants made by the Joint War Committee, but collections during the year amounted to about £48,000, of which £32,871 were derived from "Our Day" collections—namely, £27,516 at home and £5,355 abroad.

RAGAZ AND THE ENGADINE SPAS.*

AMONG the Swiss spas few are better known than that of Ragaz. It is situated in the highlands of the Canton of St. Gall, astride the river Tamina on its way to join the Rhine, with a graceful range of high mountains, the Falknis, in the background. In happier times many English travellers stayed there on their journey to or from the Engadine. The soil is porous and the climate subalpine, the height above sea level is 1,710 feet. From the village of Ragaz a carriage road follows the course of the mountain torrent through the beautiful Tamina Gorge to Pfäfers, where the thermal springs arise.

The Baths of Ragaz-Pfäfers.

The old baths of Pfäfers are placed in a homely whitewashed building, once a monastery, near the head of the Tamina Gorge, a few minutes' walk from the narrow and lofty ravine, the Gorge of Pfäfers, in which the thermal waters issue from the rock. The hot springs are said to have been discovered in 1038 A.D., and the water has been used for balneotherapy since the fourteenth century. In the steep sides of the defile, which is one of the most remarkable sights in Switzerland, roughly carved holes are still pointed out where the timbers of mediaeval bathing houses were fastened. An account of Bad Pfäfers written fifty years ago says:

> "The baths are situated on a narrow ledge of rock a few feet above the impetuous torrent, and the buildings which form them, consisting of two piles connected by a chapel, are so deeply sunk between the rocks, that the sun, in the longest summer day, is visible above them only from 10 to 4 o'clock."

The waters belong to the simple thermal group. The temperature at the source is about 99° F., but heat is of course lost in the two miles' passage along pipes to the baths at Ragaz. The ordinary output from the spring is from 6,000 to 10,000 litres a minute. Until 1840 visitors who wished to use the waters had to climb up to Bad Pfäfers by mountain paths.

* Previous articles on Aix-les-Bains and the Swiss health resorts have appeared in the JOURNAL of July 23rd, p. 118, and August 6th, p. 208.

The modern bathing establishment of Ragaz itself is excellently equipped, and the baths and kursaal with their pretty gardens and orchards are placed in a setting of great natural beauty. The four bathing houses contain between them ninety private baths; there is also a very complete installation for hydrotherapy, an enclosed swimming-bath, and a well appointed Zander institute. The whole thermal establishment, together with the adjoining Quellenhof and Hof Ragaz hotels—both very comfortable—is under the direction of M. Simon, to whom the place owes much of its renown as a summer health resort. The Ragaz-Pfäfers season lasts from early May until mid-October, but a "spring season" begins about the Ides of March.

Pontresina and St. Moritz.

From Ragaz the medical party, whose itinerary has been traced in previous articles, travelled through Coire and the Albula Pass to the Upper Engadine. Two nights were spent at Pontresina, the most favoured summer resort in this part of Switzerland. The village stands at a height of 5,916 ft. above sea level, and is well supplied with fine hotels. There are glorious views of the snowy Bernina peaks and of the Roseg and other glaciers, and the place forms a starting point for many alpine excursions. Invalids are not encouraged at Pontresina, but its invigorating sunny climate and charming walks through fields of alpine wild flowers are attractions for those in need of rest. During this halt an opportunity was found to visit the equally well-known winter resort and baths of St. Moritz. The short journey through the valley which separates the two places was broken by a funicular railway ascent to the summit of Muottas-Muraigl. Any slight breathlessness from rising rapidly to a height of 8,265 ft. was compensated for by the imposing panorama of white alps and blue mountain lakes from the terrace of the inn.

TAMINA GORGE AND BATHS OF PFÄFERS.
(From the engraving by Merian, 1630.)

During the last fifty years the broad and lofty alpine valley known as the Upper Engadine, has been much frequented at all seasons of the year as an aero-therapy station, and St. Moritz (6,080 ft.), which was known for its mineral waters in the Middle Ages, is now, perhaps, the most popular of all high mountain centres for winter sport. The wind is stronger and the air colder than at Davos, and St. Moritz no longer lays itself out for the treatment of tuberculosis. Winter sport dates back to 1880, when the first small colony of Englishmen began to make this exhilarating place their home for part of the year.

The cold chalybeate springs of St. Moritz-Bad are three in number. The present pump room and bathing establishment was built on modern lines in 1910; it contains forty-four baths and a full outfit for hydrotherapy and kindred forms of treatment. The climate of St. Moritz Dorf, a mile away uphill, is rather more bracing than that in the immediate vicinity of the Kurhaus. All three springs are rich in free carbon dioxide; the water is thus agreeable to drink as well as stimulating to bathe in. The spa season in the Upper and Lower Engadine lasts from June to September.

St. Moritz is famous for its fine hotels; perhaps the most beautifully situated of all is the modestly named Suvretta House on the outskirts of the village. A visit was paid also to the Chantarella establishment, which stands on a sheltered site overlooking the valley and the principal lake. This has been laid out as a home for convalescents and the dietetic treatment of metabolic disorders. The methods adopted there are comparable with those of kindred institutions in this country, but the laboratory side does not seem to be so fully developed.

Tarasp.

The last of the watering places visited during the tour was Tarasp in the Lower Engadine. Tarasp and the neighbouring health resorts of Schuls and Vulpera together form one spa on the banks of the river Inn as it flows to join the Danube. The use of the waters dates from the sixteenth century. In former times Tarasp was difficult of access, and it was not until the year before the war that it became linked up by the electric Engadine railway with the main Swiss routes. Tarasp itself is at the bottom of the valley; Schuls, with the railway station, is on higher ground on the left bank; and Vulpera lies higher still on the steep and rugged right bank, the whole district being dominated by the Rhaetian Alps. The altitude of the spa varies from 3,890 ft. above sea level to 4,180 ft., and the climate in general is mildly alpine, for there is shelter from north and east winds.

The waters of Tarasp-Schuls-Vulpera are cold. The most important of the sulphated alkaline springs is the Luciusquelle, whose water is rich in sodium sulphate, bicarbonate and chloride, and is highly charged with carbon dioxide. The Emerita Spring resembles it closely in composition and action. The Bonifacius Spring yields an alkaline chalybeate water. The waters of all three springs are served at the Pump Room on the river bank. The other springs are also very gaseous, and a feature of the place is therefore the natural carbonic acid baths, heated by steam pipes so as to retain as much as possible of the gas. Visitors at the comfortable Kurhaus can have their effervescent baths on the spot, and a well-planned hydrotherapeutic establishment is next door. For those who find the bottom of the valley too sheltered, there are several modern hotels among the firs and pines at Vulpera on the edge of the Swiss National Park.

The mountain scenery of this part of Switzerland is very fine, and there are charming walks and drives; but Tarasp makes no claim to be a fashionable health resort, and this is clearly an advantage for those who need rest rather than excitement when taking a course of waters in a mountain climate. Motor cars are still forbidden on the roads in the Canton Grisons, and this also may have its advantages from the same point of view, though the prohibition seems odd in the year 1921.

British Medical Journal.

SATURDAY, AUGUST 27TH, 1921.

DANGEROUS DRUGS AND THE OPIUM CONVENTION.

IT may be well to survey the progress which has been made during the last twelve months towards putting into force the International Opium Convention signed at the Hague in 1912. As we pointed out in the JOURNAL of May 22nd, 1920, Great Britain, which had ratified the Convention prior to the war, has by the passage into law of the Dangerous Drugs Act, 1920, endeavoured to give legislative effect to the Convention, and thus facilitate the proper control of the traffic in dangerous drugs of addiction. The regulations made under the Act will come into force on September 1st. As originally drafted by the Home Office they were open to much legitimate criticism; but after emendations by a Departmental Committee, in accordance with the recommendations of the British Medical Association, these are now in a form better calculated to achieve the end desired without impeding legitimate use of the drugs in question. An article explaining the manner in which the Regulations will work is published in the SUPPLEMENT this week.

From an answer recently given in the House of Commons it would appear that the Government is at present unable to state definitely what other Powers which are party to the Opium Convention have passed legislation similar to our Dangerous Drugs Act, in order to secure the all-important international co-operation in controlling illegitimate traffic in noxious drugs.

All the Powers which were signatories to the Treaties of Peace, however, have undertaken to enact the necessary legislation within twelve months from those treaties coming into force. The earliest of these treaties, that of Versailles, came into force on January 10th, 1920; the latest, that of Sèvres, has not yet come into force, and in its present form may, perhaps, never do so.

In any case the next step will be to bring other Powers which are party to the Opium Convention into line with the action already taken by Great Britain, and to secure the adhesion of those Powers, old and new, which have not yet signed or ratified the Convention. An Advisory Committee, which was appointed by the Council of the League of Nations, presented a report to that body in June, and this report, with the action of the Council thereon, will be laid before the assembly of the League which is to meet in September. The Netherlands Government, which formerly had in hand the task of carrying out the Convention, will continue to use its good offices in endeavouring to secure the co-operation of those Powers which are not members of the League, some twenty in number, while the Secretariate of the League is henceforth responsible for the necessary steps to put the Convention in force by the Powers, some fifty in number, which are within the League of Nations. A circular has been issued to the Powers concerned inviting them to state what action they have thus far taken towards putting into force the provisions contained in the Opium Convention.

At the meeting of the Council of the League in June the action of the Advisory Committee was approved, and, as we learn from the official "Monthly Summary," a further important step was taken on the initiative of Dr. Wellington Koo, the Chinese Minister to Great Britain, in advance of the Committee's recommendations. It was urged that the desired objects of restricting the traffic in dangerous drugs to legitimate purposes could never be attained so long as their production was very greatly in excess of medical or scientific requirements. Investigations are therefore to be set on foot with a view to ascertaining approximately what are the amounts of opium, morphine, cocaine, and the other drugs enumerated in the Convention, which are in fact required for legitimate medical purposes.

It is good to know that the League of Nations is addressing itself with vigour to this "humanitarian question," as it appropriately calls it. It is difficult to conceive any problem for which its machinery would appear to be better adapted, and there are certainly few questions in which whole-hearted international co-operation is so essential to achieve success. Smuggling, it is to be feared, is widely prevalent, and as long as any country produces and distributes tons of these perilous drugs irrespective of their legitimate destination avenues of illicit traffic will be readily available, and police courts and inquests will periodically disclose what is but a fraction of the evils wrought by the abuse of these narcotics.

The mischief is world-wide, and the co-operation of East and West, and indeed of every producing and consuming country, is essential for its effective suppression.

THE FALLING BIRTH RATE.

A LARGE majority of those who have written upon the decrease of the birth rate have attributed this, perhaps the most remarkable feature of modern vital statistics, to conscious restriction of pregnancy. In support of this opinion it has been shown, (*a*) that in most countries the decline first became evident in the last quarter of the nineteenth century, at an epoch when the discussion and advocacy of "contraceptives" ceased to be taboo; (*b*) that the decline has mainly affected those populations, and, within any one population, those classes characterized by economic foresight or—when the argument is propounded by an opponent of "birth control"—selfish individualism; (*c*) that direct statistical sampling has shown that the use of various "contraceptives" is widespread amongst the middle classes.

To this a minority have retorted that (*a*) the birth rate in France began to decline long before the days of discussions on birth control, and that in most countries the rate of fertility has varied from time to time; (*b*) that in social strata above the pressure of economic hardship—for example, the peerage—fertility has declined greatly, and that there has been in all classes a very distinct increase of absolutely sterile marriages; (*c*) that the statistical samples so far published do not in fact bring out a lower rate of fertility in the families where contraceptives were admittedly used than in those in which their use was specifically denied, even when sterile marriages were excluded from the comparison.

We may take as illustrating certain aspects of the matter a small book with the rather ambitious title, *The Law of Births and Deaths*.[1] The author, Mr. C. E. Pell, endorses the objections of the minority, and is perhaps a little over-scornful in his treatment of the majority. Thus he observes that

[1] *The Law of Births and Deaths.* Being a study of the variation in the degree of animal fertility under the influence of the environment. By Charles Edward Pell. London: Fisher Unwin. 1921. (Pp. 192. 12s. 6d.)

the usual argument "ignores the fact that the use of contraceptives involves the most elaborate and troublesome precautions at a time when the parties concerned are least in the mood for such precautions," and asserts that to be effective the trade in utensils, chemical or mechanical, must be "comparable in magnitude with that in some of the commoner necessaries of life, such as mustard or salt." Both these assertions are a little naïf. Amongst the very commonest means of avoiding conception are the practice of *coitus interruptus* and the use of sheaths or pessaries; the first mentioned does not support any trade great or small, none of the three can be said to involve elaborate and troublesome preparations.

Mr. Pell's own hypothesis is that fertility is negatively correlated with "nervous energy." He states his case thus: "'A' is a society woman of means, and with little need for active exertion. She will produce a moderate amount of nervous energy, but will also expend moderately. Being highly fed, she will have a nervous system always highly charged. 'B' is, say, a successful professional woman. She owes her success to a great natural fund of nervous energy. She expends on a large scale, but also produces on a large scale. She has a great capacity for work, which means that her system replaces the energy almost as fast as it is expended. She also will have a nervous system almost always highly charged. Thus one will have a highly charged system because she expends little, the other because she produces much. They may be equally fertile or infertile. 'C' is, say, a sweated worker of the East End of London. She is overworked for very long hours and underfed. The result is that she is chronically tired and deficient in nervous energy. Her nervous charge will be always low. If she is married, we may expect a large family." What Mr. Pell understands by the term "nervous energy" is not clear. Sometimes, as in the passage just quoted, he seems to have in view some vague physico-physiological property of the central nervous system; at others he identifies the "energy" with the psychological characteristics of different types of civilized and uncivilized mankind. His conception is not made clearer by an examination of the evidence which, he thinks, supports his theory. This, in the case of man, amounts to little more than a recital of familiar facts respecting the association of a high birth rate with a high death rate and the association of a high birth rate with low economic status, and, in the case of other animals, to a summary of Darwin's observations, together with a criticism of Darwin's and Spencer's interpretations of various facts.

Mr. Pell's book, although interesting, does not, we think, reveal much capacity for scientific inquiry. For instance, he appears to hold that his theory involves a very high correlation between birth rate and death rate, and that Dr. Stevenson's results in the case of Ireland are unfavourable to it. He first remarks that it is "hardly possible to express an opinion as to what may be the cause of this peculiar result," then roundly asserts that Dr. Stevenson's interpretation is "fairly certain" to be wrong, and finally doubts whether the result itself is any more than the product of "very refined mathematical calculations based upon very imperfect data." All the data for the discussion of this particular problem are as accessible to Mr. Pell as to Dr. Stevenson; a careful re-examination of them with the aid of the not very recondite statistical methods needed would have been a far more valuable contribution to knowledge than the *ad captandum* arguments used. It is singular that, to judge by his contemptuous reference to Malthus's idea that mere abstention from sexual intercourse could have a sensible effect on fertility, Mr. Pell does not see that another weapon to assail the crude popular form of the "contraceptive" theory is waiting to be employed. In the statistics of the Birth Rate Commission analysed by Brown, Greenwood, and Wood the most popular method of limiting fertility was alleged to be "continence." Of 289 married women who asserted that they restricted their families, 105 gave as the method merely "continence," 86 gave no particulars, and the next most frequent specification (*coitus interruptus*) occurred in only twenty-six replies. Brown, Greenwood, and Wood suggested that, since many persons would not regard mere abstinence from coitus as restriction or birth control in the popular sense, the comparison between restricted and unrestricted families broke down. We say in the popular sense, for in controversial literature—for example, in our correspondence columns—birth control invariably connotes some habit deemed to be more "unnatural" than continence. It is not hard to believe that the sexual appetite is lessened by the diversion of emotional discharges into other channels and that, quite apart from the existence and use of contraceptives, marital intercourse may be less frequent under the social conditions which are observed to be correlated with lessened fertility. The body of facts testifying to the importance of such *Bahnung* in the etiology of psycho-neuroses is absolutely large, but we have no knowledge of the circumstances of those who do not come within the sphere of the specialist physician—that is, no knowledge of random experience. It is this fact which deprives most, we think almost all, discussions of birth control and the falling birth rate of real importance. The statistical end-products of sexual relations, the numberings and classifications of births, have been minutely analysed by the most famous statisticians; to enumerate those who have written on the problem is in effect to record the names of the most prominent statisticians in the world—Pearson, Yule, Stevenson, and Brownlee in this country, March in France, Sundbärg in Sweden, Knibbs in Australia, and many others. The grist in this mill has been ground out very fine indeed, and there is very little probability that any new important truths can be obtained in this way.

Further light upon the problem will only be shed when the statistics of an earlier phase of the sexual relation are made available. This is, we fear, almost tantamount to saying that no further progress is possible. Some of the very simplest elements are altogether inaccessible. What, for instance, is the average probability that an act of unrestricted coitus with an unimpregnated female of given age will be fertile? Is there a great reduction in the chance of impregnation when intercourse is restricted to a particular part of the menstrual cycle? Is there a significant difference between the frequencies of marital intercourse in different social strata? Has the average frequency diminished? These are very important elements of the problem; in theory it would be much easier to collect data bearing upon them than to assemble other anthropometric and economic information which has enabled quite complex sociological problems to be solved. But, at our present stage of cultural evolution, there is no chance whatever of applying the statistician's method of random sampling to this subject. One might almost say that the fact that a number of persons were willing to furnish the data would *eo ipso* deprive their material of the character of being a random sample. This is the

reason why current discussion is so unilluminating. It is also disingenuous; Mr. Pell is, we think, quite justified in saying that the advocates of the contraceptive theory have largely ignored both the peerage data and the evidence (adduced by Dr. Brownlee and Dr. Chalmers) that fertility had sensibly varied long before the end of the nineteenth century. But Mr. Pell himself ignores the fact that there are successful contraceptives which are not sold in chemists' shops, and that the use of one of them led Jehovah to take very drastic steps in the days of the patriarchs (Genesis xxxviii, 9, 10).

If any advance beyond the present position is to be made in our generation it will be made by a general practitioner of medicine who takes notes. The documented experience of such a man approximates far more closely to a faithful record of the sexual lives of a random sample of the population than anything we can hope to get by other means. It is true that the problem is of first-rate importance. It is also true that current medical contributions to its solution are of little scientific value, and that some writers waste a good deal of their own and other people's time in vague moral denunciations or defences of birth control. A very small number of exactly recorded facts are worth a very large quantity of moral eloquence.

THE FATE OF THE MAUDSLEY HOSPITAL.

WE are glad to observe that public attention is being directed to the unsatisfactory position of the Maudsley Hospital. The facts are known to our readers, but the London County Council appears to consider itself superior to scientific opinion. It may, however, be impressed if the general public is sufficiently aroused to understand the position, for to understand must be to condemn. As we have said, there are signs that the public is beginning to appreciate the importance of the facts which induced the late Dr. Henry Maudsley in 1907 to give a sum of £30,000 to the London County Council to build a hospital for the study and treatment of acute mental diseases. In making this offer Dr. Maudsley informed the London County Council that as a physician who had been engaged in the study and treatment of mental diseases for more than fifty years he had been deeply impressed with the necessity for a hospital whose main objects should be the early treatment of cases of acute mental disorder in order to obviate, as far as possible, the necessity of sending them to the county asylums; with the need for the promotion of exact scientific research into the causes and pathology of insanity, in the hope that much may yet be done for its prevention and successful treatment; and, finally, with the importance of providing an educational institution which should offer to medical students the opportunity of clinical instruction in a class of diseases of which under existing conditions it is not easy for them to obtain a competent knowledge. The London County Council accepted the gift, but was very dilatory in carrying out the obligations it thereby undertook. A site was eventually selected at Denmark Hill. In 1913 the County Council reported to the Commission on University Education that great advantages were hoped from the facilities the Maudsley Hospital would afford for the early treatment of cases of mental disease and for the systematic instruction of students, and that a department for pathology would be established to which would be removed the staff and equipment of the Claybury laboratory under the direction of Sir Frederick Mott. The buildings were completed shortly after the war broke out, and were used with great advantage as the neurological section of the 4th London General Hospital. A large number of cases of war psychoneuroses were studied and treated, and important additions to knowledge made. Since then systematic courses for the diploma in psychological medicine have been instituted at the hospital, and to the laboratories over which Sir Frederick Mott presides his great reputation as a neurologist has attracted students of all nations eager to share in the pioneer work he has conducted and directed. Sir Frederick Mott is approaching the age period for retirement, and there are, we are told, indications that not only will no attempt be made to retain his services as a teacher, but that the post of pathologist will be suppressed and the laboratories devoted not to research but to the routine examination of specimens. It is barely credible that the Maudsley Hospital should remain closed and the London asylums destitute of skilled scientific assistance. Well may a physician write in despair of the disappearance of this young but important school of psychological medicine, the cessation of pathological research, and the scrapping of the valuable apparatus collected by Sir Frederick Mott. Such a policy — or want of policy — can only mean the arrest of most promising attempts to understand and to treat scientifically the causes of insanity. The motive is believed to be a desire to save the relatively trifling expense of maintaining laboratories—said to be less than the cost of the annual maintenance of fifteen patients. In 1913 the London County Council told the University Education Commission that the Maudsley Hospital, when established, would be "in close touch with the London University and medical schools." Shall we plead in vain if we ask the University to take action without delay to ensure for it the continued possession and extension of a psychiatric institute worthy to rival the great establishments in other countries? The war and the special purposes to which it was put during it have retarded the development of the hospital both as a teaching and research institute. Its growth along the best lines can be ensured by suitable expenditure on the laboratories and by retaining, if possible, the services of Sir Frederick Mott.

RADIOLOGY IN CANCER.

"IN view of the publicity that has been given to radiotherapy in the treatment of cancer by the publication of laudatory articles in the medical and lay press, and the extraordinary claims that have been put forward by the authorities of the West London Hospital," the British Association for the Advancement of Radiology and Physiotherapy, which includes the majority of radiologists in the country, has deemed it advisable to issue to the lay press a considered statement on the use of these agents. The claim put forward by the Erlangen school is that it is possible by a special method to administer a dose of x rays which will cure cancer in one application. The statement points out that the treatment, which has not yet been thoroughly tested, possesses great potential dangers, and may not prove as efficacious as the claims now made would suggest. In the nature of the case, however, no certainty can be arrived at for some years. The unwarranted laudation of this change in technique will, it is thought, probably lead to a reaction, and bring discredit upon x-ray treatment in general. The subject has so recently been discussed by Dr. Knox in his address to the Section of Radiology at the annual meeting of the British Medical Association, and in a leading article published last week (pp. 267 and 290 that we need not reproduce the statement in full. It will suffice to say that the experts by whom it is issued state that the time has not yet come when radiotherapy may be regarded as the first choice in the treatment of the majority of cases of cancer; they believe that, of any single method, surgery still offers the best prospect of cure in nearly all cases of cancer, and that until much more convincing proof of the efficacy of x rays or other form of radiation is forthcoming the possibility of successful surgical intervention ought to be, in each particular case, fully discussed. They go on,

however, to express the opinion that a closer co-operation between the surgeon and the radiologist would lead to a clearer appreciation of the value of radiation in treatment, and that in all cases both surgery and radiation therapy should be fully considered, with a view to making the fullest use of both. Combined treatment, it is thought, offers the greatest hope of success. Radiologists in this country, the statement continues, have, during the past few years, so far perfected their technique that the risk of any injury to the patient is now small, provided that the treatment is under the direction of a medical man of wide experience in this class of work. If the prospects held out by the more drastic procedure prove to be better than those offered by existing methods full advantage will be taken of it in this country; the real contributions to progress of the Erlangen school are held to be that it has employed in suitable quantities *x* rays of a higher penetration than that hitherto used, and has carefully systematized already known methods of measuring dosage. It is unnecessary to import the apparatus from Germany; several firms in this country are now making the requisite equipment, so that difficulty of obtaining plant will not be a bar to research. The statement concludes by pointing out that *x* rays have already relieved suffering and prolonged active life in thousands of cases, and have even effected a few apparent cures, while their value in helping to prevent return after operation is now generally recognized. It would therefore be neither more nor less than a calamity if public disappointment resulting from unfulfilled promises were to bring discredit on radiation therapy, which is in reality a powerful agent in the warfare against disease.

RECONSTRUCTION AND INDUSTRIAL MEDICINE IN BELGIUM.

AFTER the armistice the condition of Belgium was such that it must have seemed impossible to the unbiassed observer that the country could ever become rehabilitated. Extensive districts in Flanders and the Ardennes were devastated and deserted; a third of the factories and the railways had been systematically wrecked; the bare necessaries of life were still rationed, and some of the most ordinary articles of diet, such as cheese and fish, had almost been forgotten, so long was it since they had been seen upon a table; the cost of living was estimated at 639 per cent. above pre-war prices. Yet such was the confidence of this indomitable nation that, months before the end of the war could certainly be foreseen, measures for reconstruction had already been outlined, and early in 1918 the Prime Minister resigned the portfolio of war to become the head of a new department of national reconstruction. The important place which medicine should fill in this work was recognized, and after the war was over one of the first steps was to establish an independent industrial medical service; it included eleven medical inspectors of factories, a laboratory, and an expert research chemist, all under the direction of its own chief, Dr. D. Glibert, who had served as chief factory medical inspector ever since industrial medical inspection had been instituted in Belgium twenty-five years ago. In Britain, as Dr. Dearden pointed out in the discussion on industrial medicine at the recent Annual Meeting of the British Medical Association at Newcastle-on-Tyne, there are only four medical men and one woman holding similar posts, and an independent or semi-independent department of factory medical inspection, with an adequate staff of medical inspectors, is as urgent a necessity to-day in this country as it was in Belgium. An article by M. René Sand, reprinted from a publication with the curious title, *Nelson Loose-Leaf Living Medicine*, describes in some detail the far-reaching programme of industrial medical reconstruction which Dr. Glibert has put forward. Before the war Belgium was the most densely populated country in Europe, and, from having been merely an agricultural country, had become, by the beginning of the twentieth century, a manufacturing nation, remaining, however, what it had always been, a country of low wages and long working hours. The cost of living, however, was low, on account of the low taxes, the low wages, the fact that dealers were content with small profits, and on account of certain other conditions peculiar to the country. Most of the workers did not live in the cities; the cheap weekly railway ticket system, instituted by the State, and the Belgian tramway system, which was one of the most extensive and cheapest in the world, enabled the majority of the workers to live in country cottages, surrounded by gardens, where they were able to raise vegetables, poultry, rabbits, and pigs. The development of mutual benefit societies, loan banks, popular housing associations, and co-operative organizations was also very considerable. Such, then, had been the former condition of the industrial population of Belgium, and the first duty of the new industrial medical service was to get into touch with every agency, official or unofficial, which possessed any influence upon the health and education of the working classes. The chief industrial medical inspectors became members of the national councils for health, for child welfare, and for education. They enlisted the co-operation of the Belgian Medical Association and of the regional medical associations. They created interdepartmental joint commissions which co-ordinated the efforts of the factory medical inspectors with the work of other departments. A library on industrial medicine was created, a constant exchange of publications and views was secured with the industrial medical services of other countries, and a periodical, the *Bulletin du Service Médical du Travail*, was started. The proposals of Dr. Glibert covered the protection of the health of the workers in four different main directions: the health of apprentices was protected by medical examination and by restriction of employment; minimum standards for safety in industry were prescribed; a bill was introduced to provide compensation for occupational diseases; a decree imposed upon employers the duty of securing medical care for employees injured or ill at work, and the establishment of clinics for providing such medical aid was encouraged in industrial centres. The medical service of the mutual benefit societies, which comprised about one-fifth of the population, was reorganized, and a general compulsory insurance bill was introduced, the principle of which has been unanimously accepted. This programme is a brave attempt, in face of many difficulties, to bring modern medical methods to aid in the reconstruction of industry.

RIB PRESSURE AND THE BRACHIAL PLEXUS.

IN the course of a paper based on twenty-three observed cases and a thorough review of the literature, Drs. Edwin Bramwell and H. B. Dykes[1] raise a number of interesting questions as to brachial plexus lesions due to rib pressure They divide the cases into two groups: (1) those with symptoms referable to the first dorsal root or lower cord of the brachial plexus, and evidently due to rib pressure, in which a cervical rib or a rudimentary first dorsal rib can be demonstrated; and (2) those with the same symptoms but without any evidence of anomaly of the ribs, the symptoms being due to pressure exerted by a normal first dorsal rib. It is only during this century that rib pressure has been generally recognized as a cause of symptoms. Sir William Thorburn in 1904 was the first in this, and, perhaps, with the exception of Borchardt, in any, country to apply *x* rays in the diagnosis of a cervical rib. Since then it has been established, as was tentatively suggested in 1903 by Dr. E. Bramwell, that symptoms similar to those associated with a cervical rib occur in the absence of this abnormality, the proof that pressure

[1] E. Bramwell and H. B. Dykes: *Edin. Med. Journ.*, 1921, N.S. xxvii, 65–88.

symptoms may be caused by an apparently normal first dorsal rib being provided by the disappearance of symptoms after removal of the rib. The answer to the question, "why is it that a particularly well developed cervical rib is often, perhaps usually, unaccompanied by pressure symptoms, while in other cases pressure symptoms are present in the absence of any obvious rib anomaly?" may be found in Professor Wood Jones's conclusion that the development of the ribs is determined by the nerve roots, and that there is a constant antagonism between the developing nerve and the developing rib element; on this hypothesis the question whether the presence of a cervical rib on the one hand, or of a rudimentary first dorsal rib on the other hand, shall produce symptoms is decided by differences in the formation of the brachial plexus; thus, when the brachial plexus includes caudal nerve roots which do not normally join the plexus, the interference with the development of the dorsal first rib will be at its maximum. Since pressure symptoms are found in only a small proportion (5 to 10 per cent.) of persons with cervical ribs, other factors are concerned, and of these additional conditions sex is very influential; out of fifty-six cases (Thorburn, Hinds Howell, and Bramwell and Dykes), forty-nine were in females; and Professor Wingate Todd has made the attractive suggestion that the pronounced dropping of the shoulder girdle in early life, which he has noticed in females, explains the sex incidence. Occupation, debility, trauma, and infection are less obvious factors, but posture, especially confinement to bed, more frequently exerts an influence in bringing on pain. In the final section, on the indications for operation and the results, the authors point out that, when not constant or well marked, the symptoms may sometimes be materially benefited by attention to the general health, a sling to support the elbow, exercises or electricity to develop the trapezius and so counteract dropping of the shoulder girdle, or a blister above the clavicle. But with constant or severe symptoms surgical treatment is necessary and gives brilliant results, though, as would naturally be anticipated, it is much more successful in relieving pain than in restoring atrophied muscles.

SMALL-POX IN TEXTILE TOWNS.

Cases of small-pox continue to occur in Nottingham, five cases having been notified between August 16th and 23rd. In all, sixty-one cases have now been notified in that town since the beginning of June. Those whose occupations expose them to contact with rags, clothes and the like, have frequently been noted to be among the earliest cases in an outbreak, and are believed not uncommonly to have been the originally infected cases in a locality. Laundry workers and the personnel of disinfecting stations have been observed to be among the earlier secondary cases, and the means of their infection is scarcely open to doubt. The sorting of rags imported from distant countries as a cause of the diffusion of small-pox was investigated by the late Dr. Franklin Parsons in the "eighties," and much incriminating evidence recorded. He noted that workers among woollen rags were less exposed to danger than workers among cotton rags. Dr. Corbin, M.O.H. of Stockport, has put on record [1] a number of outbreaks in which raw cotton appears to have been the primary infecting material among cotton operatives. Both Egypt and America have in this way, in the opinion of Dr. Corbin, been centres from which small-pox has reached this country by means of exported raw cotton infected presumably by workers suffering from undetected small-pox. It will in any case be well to recognize that the channels by which small-pox may reach this country are not limited to the immigration of persons actually suffering from or incubating the disease. The extensive textile industries of central and northern England impose a particular, not to say serious, risk of infection upon the operatives engaged in them, and whether the outbreaks at Nottingham and Huddersfield prove to have originated in the manner suggested or not, the liability to invasion by the disease in this way must always be borne in mind. The Glasgow outbreak appears to have yielded to the energetic measures applied under the able direction of Dr. Chalmers, but many European and other countries with which the closest intercommunication exists are at present definite centres of potential diffusion. Eastern and Southern Europe, and even Germany, are infected, and so are North and South Africa, North and South America, India, and Japan. This wide diffusion of the disease is a serious feature, both prolonging and intensifying the risks in commercial countries such as England. It is to be remembered that the proportion of the population susceptible to small-pox has been steadily increasing during the last twenty years. The number of births registered in England and Wales in the year 1901 was 929,882, and in that year 664,366 infants were vaccinated—that is, the percentage of vaccinations to births was 71.4, and in the same year 39,925 infants were legally exempted from vaccination. In 1919, the last year for which the corresponding figures are available, there were 691,370 births and 281,029 infants vaccinated. The percentage of vaccinations to births was 40.6, and 277,558 infants were legally exempted.

[1] *Small-pox among Cotton Operatives.* By H. E. Corbin, Section of Epidemiology and State Medicine, *Trans. Roy. Soc. Med.*, 1915.

THE EDUCATIONAL NUMBER.

The next issue of the British Medical Journal, that dated September 3rd, 1921, will be the annual Educational Number. This will describe the requirements of the General Medical Council and of the various examining bodies, and give detailed information as to the courses provided for medical students and practitioners by the teaching institutions of the United Kingdom, together with notes on the Public Medical Services, post-graduation study, and the special branches of professional work.

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

The Parliamentary Session.

For all legislative purposes other than Irish or unforeseen emergency the adjournment of Parliament on August 19th to October 18th counts as prorogation. It is appropriate, therefore, to glance at the record of the Session from a medical point of view. The outstanding features are the change in the Office of Minister of Health, Lord Cave's report on hospital finance, the reorganization of pensions administration by means of the Act introduced by Mr. Macpherson, and the Dentists Act.

There is no need to say anything here about personal equations, except that, whatever may be the controversy over the housing policy, Dr. Addison has the satisfaction of seeing that Sir Alfred Mond recognizes the value of the foundations laid for health work by his predecessor. While he will have due respect to the stringent call for frugality which is going through Whitehall like an east wind, he does not intend to weaken or diminish the effort to build up for the nation the supreme asset of health with its economic advantage of greater working value.

The report of Lord Cave's Committee is recent enough to be familiar. The emphatic finding in favour of the maintenance of the voluntary hospital system confirmed general expectation and is all the more convincing because it is based on the latest information and figures. What the public had not fully recognized before was that a large part of the outstanding debt of these institutions was incurred for war services, and it is all the more regrettable that the Treasury does not see its way to give more than half a million instead of the million which the Committee showed to be required to clear the debt. Subject to that difference, all the recommendations have been accepted, and Sir Alfred Mond has promised to assist in seeing them put into operation with the object of placing the hospitals on a less precarious footing. So it may be hoped that fresh heart will be given to this most beneficent of enterprises.

The War Pensions Act has also been fully explained, and though the criticism is possible that it increases bureaucratic control, the advisory committees are to be made more representative and ensure the check of local public opinion. It is considered that the work has reached the stage when to ensure efficiency and economy it must be increasingly systematized by central direction. It should be noted that Mr. Macpherson was able to dispose utterly of the vague and calumnious assertion that medical appeal boards were being requested for financial reasons to modify their awards. There is not, of course, the smallest idea of an attempt to minimize the national obligation. The boards are free and independent.

The Dentists Act, it may be remarked in passing, was a remarkable demonstration of success in private bill legislation, made possible by the assistance of the Government. Of other measures of the session the departmental bill to enable county and borough councils to undertake, as from April 30th last, responsibility for the treatment of tuberculosis was a corollary of what had been done last year. The Census Act opened up new sources of information calculated to help in providing knowledge of housing exigencies and of industrial conditions as shown by the figures of comparative employment in various occupations. The Public Health Officers Act affords to medical officers and sanitary inspectors of local authorities security already enjoyed by the medical officers of other bodies; and the Coroners' Remuneration Act, though only permissive and not compulsory, as originally framed, will enable local bodies to revise salaries as circumstances demand. As regards the Criminal Law Amendment Bill, Dr. Farquharson is entitled to sympathy on the rejection of the measure on the last lap, when its passage seemed to be assured. But with such large majorities in both Houses in favour of the proposals as they were originally presented the matter cannot be left as it is. It will come up again next session with added strength, whether in this or a new Parliament.

In two matters, which are none the less important as affecting health because their influence is indirect rather than direct, compromises which appear to represent the national feeling of the time were successfully made by the Government. Housing schemes have been foreshortened, but it is claimed that work to be undertaken will occupy all labour available for the purpose for the next eighteen months, and before then the position can again be considered. The Licensing Act cuts between prohibition at the one end and those who would have had the country return to something like the pre-war latitude in drinking.

No attempt can be made here to appreciate individually the contributions of the medical group to the work of the session. Sir Watson Cheyne, Sir Henry Craik, Sir Philip Magnus, Drs. Farquharson, Fremantle, Elliot, Murray, and Raw, have taken an active share, the last named serving as chairman of the committee during the time Sir Watson Cheyne was absent on account of illness. The medical men in the House have more than justified their position, both in the general and particular application of their minds to parliamentary problems.

Loss of the Criminal Law Amendment Bill.

The Criminal Law Amendment Bill came before the House of Commons on August 17th for consideration of the Lords' refusal to accept certain amendments inserted in the Commons. These were: (1) A new clause to make acts of gross indecency between women a misdemeanour punishable under the Criminal Law Amendment Act; and (2) a provision that the hearing of the trial of incest cases *in camera* should be subject to the discretion of a judge in any case.

It will be remembered that, following on the findings of a Joint Committee of the two Houses, the bill was introduced in the House of Lords by the Bishop of London and made smooth passage there. Late in the session the Government gave facilities for its progress in the Commons, where it was in charge of Dr. Farquharson; but Mr. Chamberlain, in making this concession, said as to this and some other bills that the Government would not think it right to ask the House to take them during late hours of sitting "except with something like general assent." Thus it was that the Lords' refusal to accept the Commons amendments came before the Commons after 11 at night on August 17th.

Major Hamilton, in moving that the bill be further considered that day three months—or, in other words, that it be rejected—insisted that what Mr. Chamberlain had said amounted to a pledge. He also submitted that the Lords were right in holding that the new clause setting up a new offence should not have been introduced without the fullest consideration. He held that the bill ought to have been brought forward as a Government bill, and dealt with deliberately. He regarded this as hustled legislation.

Sir E. Wild, seconding the motion, said that when the new clause was passed in the Commons 205 members were present, and the fact that the Lords had rejected a proposal which had received such large support in the Commons was proof that the measure was highly contentious and should not, having regard to the Government pledge, be proceeded with at that hour of the night and that period of the session.

Dr. Farquharson said he was much impressed by the statements of the last two speakers as to the contentious character of the measure. When he obtained from the Government a promise that the bill might be proceeded with, he did so on representations made by him and others as to the prospects of more or less agreement. There was almost unanimity on the part of all the women's societies in the country for the bill as it originally appeared in the House, and a most imposing meeting was held in the House at which united support was given to it. But what happened on the third reading and was happening at that moment showed that the bill had not the general assent of the House. Therefore he was not disposed to disagree with Major Hamilton's motion. He accepted on report stage the new clause in order to facilitate the passage of the bill, but to his mind that clause was valueless.

Mr. Chamberlain explained that he did not intervene on the last occasion because he thought that those who opposed the provisions in the measure would accept the decision of the House as final. Since then the clause which had been accepted by the promoters of the bill as a compromise had been rejected in another place. The basis of compromise having been destroyed he was satisfied that there was not that basis for general agreement that would enable him to ask the House to proceed with the bill after October 11th. He expressed his gratitude, and he thought members in all quarters would allow him to say their respect, for the motives which led Dr. Farquharson to take the course he had. He was touched by the way in which the honourable member honoured the pledges given in his name, and asked the House to observe them.

In the course of further discussion Mr. Chamberlain said, in reply to Sir Donald Maclean, that he could not see his way to take the Government whips off and leave the decision on the motion to the House. Sir Donald urged that the only difference was on the insertion of the new clause; Mr. Inskip, while recognizing that the leader of the House was in a difficult position, took the same view, and said that an enormous part of the electorate would be profoundly disappointed if the bill were wrecked in these circumstances. Sir Ernest Wild later repudiated a suggestion by Lieut.-Colonel Moore Brabazon that the new clause had been introduced for the purpose of wrecking the bill, and the Speaker rebuked that member for imputing a motive, and he thereupon apologized. Sir Ryland Atkins opposed Major Hamilton's motion, holding himself free to do so as the original clauses of the bill had been carried by such large majorities. Viscountess Astor appealed to the House to pass the bill, whose object was not to deal with immorality but to protect young people. Mr. Macquisten declared emphatically that he had proposed the new clause in good faith. In his opinion the measure was only a half-measure, and legislation on the subject needed to be more fully considered. Earl Winterton, though satisfied as to the good faith of the opponents of the bill, regretted their action.

On a division the motion to consider the Lords' action that day three months was carried by 89 votes to 59. Thus the bill was lost.

The Medical Services of the Army.—On the third reading of the Consolidated Fund Bill, Dr. Fremantle said that if there was one subject which called for attention in connexion with any inquiry which the War Secretary might make as to the results of the war it was the health of the army in general. That needed the closest scrutiny, because the war had shown that this was a matter not merely for the medical service, but for the whole service. It could be dealt with only with the co-operation of the whole service, all branches of which were equally responsible for the preservation of the health of the forces. That this should be referred to a committee of inquiry was necessary because the ordinary channels seemed to be closed. When he spoke on the subject before, he was misunderstood; the late Minister for War had, indeed, replied to him with a cheap sneer that he seemed to prefer the army to be sanitary and defeated rather than insanitary and victorious. That showed a total want of appreciation of his point. The object of the medical service was to increase efficiency. At the present moment, however, the organization had gone back to what existed before the war, and this would result in a lack of co-ordination which would continue until the time of necessity came again and a big scandal occurred. One proposal which was originally vetoed, though Lord Esher afterwards recanted his opinion, was that some one person on the Army Council should be responsible for the health of the service, and presumably that would be the Director-General of Medical Services. Secondly, an inquiry into the results of the war in this respect should embrace the question of inter-imperial co-ordination—namely, co-ordination between the medical services of the different dominions. Thirdly, the inquiry should deal with the possibilities of co-operation with the civil services both in peace time and on active service. He believed that this was being inquired into at the present moment by the War Office, but there was not sufficient actual co-operation with the civilian personnel even for peace-time purposes. Another suggestion which needed to be considered was the very large economy

possible by attaining proper co-ordination between the medical services now run under twelve different departments of the Crown. The medical units of the Territorial Army required to be trained, especially nursing orderlies; they did not exist as such in peace time, but had to be trained with a view to being utilized in war. If the Territorial Army was to be of any use in war, the medical services should be kept efficient and the medical units should not be reduced out of proportion to the reduction necessary in the combatant units.

Cost of the Medical Services.—Dr. Fremantle on August 16th asked if the Advisory Business Men's Committee would consider "the waste incurred in the maintenance under twelve Government departments of separate public medical and nursing services with separate institutions and personnel, separate means of recruitment, separate purchase of stores and equipment, often overlapping, often in peace time redundant, to meet needs which to a large extent are the same, and on active service were often discharged by mutual assistance"; and whether in any such consideration they would be assisted by persons having direct experience of such services. Sir Robert Horne replied that, pending examination of the departmental replies to the Treasury circular of May 13th, it would be premature for him to express an opinion with regard to the alleged duplication of machinery, but the matter would be carefully investigated.

Medical History of the War.—In answer to Mr. Raffan, on August 17th, Sir R. Saunders said that the medical history of the war was being prepared in a series of volumes dealing with the general history of the medical services during the war, the diseases of the war, the surgery of the war, and the sanitary work of the war. The first volume of general history was practically ready for publication, and the first volumes of surgery and diseases of war respectively were practically ready for printing. The medical statistics of the war were being prepared by the Medical War Records Section, which was now under the direction of the Minister for Pensions.

National Health Insurance.—Mr. T. Griffiths asked, on August 18th, whether the Minister of Health had come to a decision as to the appointment of a committee or commission to inquire into the working of the Acts relating to National Health Insurance, as suggested in his statement to the House on July 5th and August 3rd; and whether, if an inquiry was made, the Minister would see that approved societies, which had the greatest experience of the administration of the Insurance Acts, should be represented thereon. Sir A. Mond said he was not in a position to add anything to the answers he had already given as to an inquiry; but before any action was taken the point raised by the honourable member would be considered.

Bacteriological Examinations in Manchester Area.—Mr. Kenyon asked for particulars as to the arrangements sanctioned by the Ministry of Health as to bacteriological examinations in the Manchester area, particularly concerning the bacteriology of venereal diseases. Were they, he inquired, tending towards the creation of a monopoly in bacteriology in that city; had the Minister received from at least one competent bacteriologist a request to make arrangements with the local authorities in that area to conduct the same examinations at lower rates than those paid to the main examining body in that city; and was the Minister prepared to authorize bacteriologists in charge of approved laboratories in that area, already conducting the work for hospital clinics, to enter into arrangements with local authorities for the examination of material collected by doctors not attached to those hospitals, in view of the economy to be effected thereby. Sir A. Mond said that he had received a request from the bacteriologists referred to, but he had not had any application from any local authority to enter into an agreement on the lines suggested. If any such application should be made on the expiry of the existing agreements it would receive full consideration.

War Cases in Naval Hospitals.—Mr. Amery stated, on August 15th, in answer to Mr. A. Williams, that the number of serving naval men suffering from disabilities due to the war and still under treatment in hospital is 18. In addition there were in naval hospitals 5 men discharged from the navy who were in receipt of pensions from the Ministry. There were 113 naval men under treatment in the Royal Naval Hospital, Great Yarmouth, suffering from disabilities due to the war. Naval men still being treated under the Ministry of Pensions, in hospitals other than naval, are not included in the above figures.

The Restriction of Opium Cultivation.—Sir J. D. Rees asked, on August 18th, whether the League of Nations was now charged with the duty of deciding how much opium was to be grown in the world and how much was required for medicinal purposes, with the object of preventing the cultivation of the poppy to any greater extent than would suffice to satisfy this need; and, if this was the intention, how did the League propose to enforce its decrees in foreign countries such as China and Persia? Mr. Shortt replied that Article 23 of the Treaty of Peace entrusted the League with the general supervision over the execution of the International Opium Convention of 1912, and any conventions on the same subject which might hereafter be concluded. One provision of the existing convention required the signatories to enact effective laws or regulations for the control of the production and distribution of opium, but it did not rest with the League to decide how much opium was to be grown.

The Export of Opium.—Colonel Sir C. Yate asked, on August 15th, what steps the Government of India proposed to take regarding the export of opium from India, owing to the failure of the Chinese Government to carry out her undertaking to put down the cultivation of opium in China. Mr. Montagu said that as the Chinese Government prohibited the import of opium into China in 1919, the Government of India was bound under the Hague Convention to prevent its export to China.

Small-pox in India.—Mr. Montagu on August 17th informed Mr. Hayday that compulsory vaccination was introduced in Calcutta on May 26th, 1880, in the city of Madras May 15th, 1884, and in the city of Bombay on September 1st, 1877. The statistics of death from small-pox so far as available were:

	Calcutta.	Madras.	Bombay.		Calcutta.	Madras.	Bombay.
1911	41	480	443	1916	58	476	1021
1912	77	106	979	1917	28	195	269
1913	120	34	212	1918	545	272	1024
1914	1038	66	252	1919	—	—	780
1915	2560	92	359				

Indian sanitary authorities admitted that compulsory vaccination had never been very rigorously carried out. It would be understood that the zenana system created difficulties unknown in the West. Mr. Bromfield asked whether the attention of the Government had been drawn to the number of cases of and deaths from small-pox which occurred among Europeans and Indian troops in India during the year 1918 as follows: European troops, 117 cases with 18 deaths; European officers, women, and children, 33 cases with 5 deaths; Indian troops, 329 cases with 46 deaths; making a total of 479 cases with 69 deaths; and what explanation the army had to offer for the failure of vaccination and revaccination to protect these cases. Mr. Montagu said he had been unable to verify the figures as regards European officers, women, and children, but had no doubt they were correct. The other statistics agreed with those in his possession. He had no information to show how many of the cases had been vaccinated, but would call for a report.

Food Protection.—Sir A. Mond stated, in answer to Mr. T. Thomson on August 17th, that a circular had lately been addressed to local authorities, suggesting, amongst other things, that medical officers, health visitors, and nurses should, during the hot weather, draw the attention of mothers of young children to the methods of preserving and storing milk and other food and protecting it from flies. He realized the difficulties of protecting food effectively in overcrowded dwellings, but he hoped that the advice given might help to secure this in many cases.

Registration of Nurses in Scotland.—In reply to Major Henderson, on August 17th, Mr. Pratt said objection had been taken by several of the larger boroughs in Scotland to the Draft Regulations framed by the General Nursing Council for Scotland. The Secretary for Scotland, however, considered that it was most desirable that the registration of existing nurses in Scotland should not be delayed, and, as the rules had been carefully adjusted with a view to securing reciprocity of registration with other parts of the kingdom, and as they in no way prejudiced the rules that might be made for future nurses, he was not prepared to withdraw them.

Air Pilots' Licences.—Captain Elliot asked, on August 17th, whether, in view of the coroner's verdict at the inquest held upon the late H. G. Hawker, which attributed the accident to the physical disability of the deceased, and also in view of the long history of tuberculous caries of the spine, disclosed by the *post-mortem* examination, the Air Secretary could state if these physical defects were ascertained at the medical examination at the Air Ministry, which took place on December 31st, 1920; and, if not, could the Minister say what further precautions were being taken to prevent the issue of Class "B" pilots' licences to persons suffering from physical defects likely to be prejudicial to the safety of air navigation. Captain Guest replied that it was known at the Air Ministry that Hawker had had tuberculosis, but at the examination in December, 1920, in the opinion of the medical officer his state of health warranted the renewal of the licence. This licence expired at the end of June, 1921, and at the time of his death Mr. Hawker was flying without a licence. In all cases, both for the orginal grant of a "B" licence and for its renewal, a most careful medical examination was carried out, and it was improbable that a person suffering from physical defects likely to interfere with his qualifications as a pilot would successfully pass this examination. Captain Guest added that it would have been impossible for Mr. Hawker to take up a passenger.

Letchmore House, Richmond.—In answer to Captain Tudor Rees, Major Tryon stated, on August 16th, that Letchmore House, Richmond, was recently taken over by the Ministry of Pensions from the War Office for the treatment of the more severe cases of neurasthenia. Patients with more pronounced mental symptoms were accommodated in a separate wing of the building under observation by orderlies, and did not mix with other patients. No persons certified as insane were inmates of this hospital.

Hospital Subscriptions: Income Tax.—In reply to Captain Bowyer, on August 18th, the Chancellor of the Exchequer declined to promise to introduce legislation providing that next year's subscriptions to hospitals should not be liable to income tax.

Ex-Service Men in Hospitals.—Major Tryon, in reply to Mr. Aneurin Williams on August 16th, gave the number of ex-service men at present receiving in-patient treatment from the Ministry of Pensions for disabilities due to or aggravated by service in the great war as approximating 34,000. These figures included 2,600 men undergoing concurrent treatment and training.

Eligibility of ex-Service Men for Medical Treatment.—Major Tryon stated, on August 16th, that no distinction is drawn, under existing regulations of the Ministry of Pensions as regards eligibility for treatment and allowances, between the man who on account of a small disability has been awarded a lump sum and the man who is awarded a final weekly allowance. It has been the practice of the Ministry to allow reconsideration of the man's claim even in these cases of minor disability.

Exchequer Grants to the Universities.—In reply to Mr. Johnstone, who asked, on August 18th, the total amounts of Exchequer grants to universities in England and Wales for the years 1890, 1900, and 1910 respectively, Sir R. Horne said in the financial year 1890–1891 the Exchequer grant was £28,500; in 1900–1901, £42,000; in 1910–11, £154,250; in 1919–20, £742,000, of which £510,500 was described as recurrent, and £231,500 as non-recurrent.

Discharge of Lunatics.—In reply to questions on August 15th and 17th, the Minister of Health undertook to ask the Board of Control to consider whether further steps could be taken to make known the right of friends of private patients or the authority liable for the maintenance of pauper lunatics, to the provisions with regard to discharge contained in Sections 72–14 of the Lunacy Act.

Compulsory Vaccination.—Dr. McDonald asked, on August 17th, if the Minister of Health would, at the earliest possible date, introduce legislation making it compulsory for all individuals who had been in contact with small-pox cases, and who had not been vaccinated in five years, to submit themselves to vaccination. Sir A. Mond said he could not undertake such legislation.

Beds for Tuberculosis.—On inquiry by Captain Elliot, on August 17th, Sir A. Mond said that the number of beds in institutions approved by his department for the treatment of tuberculosis increased from 8,888 (or 0.258 bed per 1,000 of the population) in August, 1914, to 16,396 (or 0.470 bed per 1,000 of the population) in August, 1920.

Pensions Hospital, Chepstow.—On inquiry by Major Prescott, on August 18th, Mr. Macpherson said that the number of patients at present in the Chepstow hospital was 167; the staff comprised five medical officers, including the medical superintendent. The hospital was for neurasthenic patients. He was considering the reduction of the medical staff in this hospital and in others.

ROYAL MEDICAL BENEVOLENT FUND.

At the last two meetings of the Committee thirty-seven cases were considered and £510 was voted. The following is a summary of some of the cases relieved:

Daughter, aged 61, of L.R.C.P. and S.Edin. who died in 1895. Applicant lost all her belongings through a fraudulent solicitor. She used to earn a little as a journalist, but cannot get work now. She now appeals to the Fund for help. Rent and rates £33 per annum. Voted £18 in twelve instalments.

L.R.C.P. and S.Edin., aged 70, who is now unable to work owing to paralysis agitans. He is dependent on his wife, who earns £3 5s. per week as a clerk. They are living with applicant's father-in-law, who has a pension and is also helpless; they pay £2 per week for their board and lodgings. Voted £26 in twelve instalments.

Widow, aged 68, of M.R.C.S. who died in 1882. Owing to chest and heart trouble applicant has not been able to earn anything for the last five years. For two years she has been living on proceeds of the sale of her furniture; this has now gone, and applicant asks the Fund for help. She has been living with a married daughter, but cannot do so any longer; her son allows her £12 per annum. Voted £18 in twelve instalments.

Widow, aged 41, of M.B.Ireland who died in 1920. Applicant left with four children, aged 5 to 16. The second boy, aged 14, provided for by uncle. The eldest son, aged 16, is consumptive, and has just returned home from a sanatorium. Applicant has sold her furniture and is now living in rooms. Since September, 1920, she has received £114 from investments. Voted £18 in three instalments.

Daughter, aged 73, of M.R.C.S.Eng. who died in 1847. Applicant is partially blind and consequently unable to work. Her sole income is derived as follows: £25 from investments, £20 from the Royal United Kingdom Beneficent Association. Rent and rates amount to £28 per annum. Voted £18 in twelve instalments.

Widow, aged 59, of M.R.C.S. who died in 1913. Owing to enforced sale of house to pay off heavy mortgage applicant has no means, and has lived the last few months by selling her jewellery. She pays 15s. per week for board and lodging. This case has been referred to the Fund by the Portsmouth C.O.S. Voted £5.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters J. Symonds, K.B.E., C.B., F.R.C.S., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is overwhelmed, in these days of exorbitant prices for clothing and household necessaries, with applications for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles for the benefit of the widows and children who in happier times would not have needed assistance. The gifts should be sent to the Secretary of the Guild, 43, Bolsover Street, W.1.

England and Wales.

PUBLIC HEALTH IN ENGLAND IN 1920.

THE early issue of the report of the Ministry of Health for 1920–21 compared with the tardy publication of the annual reports of the Local Government Board is evidence of the desire of the Ministry to create and stimulate interest in the work carried on by the central health department of the country, for a two-year old report has lost its attractiveness, however admirable may be the achievements which it records. The Ministry of Health has now taken over from other Government departments certain functions which properly belong to the Ministry—for example, the powers as to water undertakings have been transferred from the Board of Trade, and from the Home Office has been taken over the administration of the Anatomy Acts, of various powers and duties relating to mental disease, and the enforcement of certain provisions of the Factory and Workshop Act, 1901, especially the prohibition of the employment of women after child-birth. Conversely, the Board of Trade is now responsible for work in relation to gas undertakings of local authorities, the Home Office deals with registration and elections, and the Board of Education is the authority for certain purposes under the Museums and Gymnasiums Act, 1891, and the Public Libraries Act, 1901, with all of which the Local Government Board was concerned.

An important step has been taken by the Ministry with a view to lessening the great cost entailed by proposals for the extension of municipal boundaries. On this question Dr. Addison called to his assistance the Consultative Council on local health administration and the recommendations of that body should go a long way towards reducing the heavy charges which are entailed in connexion with many local inquiries, at which there is often an array of counsel and expert witnesses as large as that to be seen in a parliamentary committee room when a private bill is under consideration.

The statistics given in the report are held to justify expenditure on the prevention of tuberculosis. In 1915 there were notified 68,309 cases of pulmonary tuberculosis; in 1920 the number was 57,844. In the same two years the deaths were 41,676 and 33,469 respectively. There are 418 institutions in which tuberculosis is treated, and they provide 17,352 beds. The prevailing financial conditions made it impossible to proceed with the proposed scheme for the establishment of village settlements and industrial colonies for tuberculous persons. The organized treatment of venereal disease has been in force for about four years. There are now nearly 200 treatment centres, and one—at St. Thomas's Hospital, London—is open every weekday from 8 a.m. to 10 p.m. The number of patients dealt with for the first time at these centres in 1920 was 105,000, and nearly 20,000 were found not to be suffering from venereal disease.

The low infant death rate of 80 per 1,000 births in 1920 is referred to with pardonable pride, and the report says "it can hardly be doubted that, after allowing for other circumstances which may conduce to low infant death rate, the special work done under maternity and child welfare schemes for the health of child-bearing women and children must be responsible for a part of the reduction." It is considered, however, that the extension of this work in recent years has been so rapid that there is some advantage in a halt at the present time for the purpose of considering the existing position and for a careful planning of future extension to meet the needs of the locality. There are over 3,000 health visitors in the country working from 1,780 centres; of these centres 712 are administered through voluntary agencies. There is still a serious shortage of trained midwives in rural districts where it is difficult for these women to make a living by independent practice and they have to be subsidized by nursing associations and act also as district nurses.

There appears to be an increasing number of whole-time medical officers of health in the country. There are 250 who act for county boroughs and county districts, and 62 of them act for more than one district. In the opinion of the Ministry this is the best method of filling the appointment of a medical officer of health in a district which is too small to need the whole time of an officer. In view of

the existing financial position in the country no proposals are made by the Ministry involving additional expenditure, but local authorities are advised to devote increased attention to the task of surveying the whole field of health services and health organization in order to ensure that, when the economic situation permits fresh progress to be made, whatever action has to be taken will be based upon a mature and deliberate plan.

HEALTH OF LONDON IN 1920.

The report of the medical officer on the health of London in 1920 follows close on the heels of his report for 1919, which was noticed in our issue of August 6th. We propose to deal with the new report at length shortly, and will now notice only the remarkable figures with regard to the birth rate and the death rate. The birth rate rose from 18.2 to 26.4, and the death rate, which was 13.6 in 1919, fell to 12.6 in 1920, the lowest rate for London ever registered; moreover, the infant mortality rate dropped to 76, the lowest ever recorded in London—lower even than the rate of 80 for England and Wales as a whole, and comparing favourably with 85, the rate in the other great aggregation of population, that of New York. It is to be noted, however, that the increase in the prevalence of certain notifiable infectious diseases observed in 1919 continued during 1920, the high incidence of scarlet fever and diphtheria being particularly noticeable.

TREATMENT OF TUBERCULOSIS IN LONDON.

The London County Council, at its last meeting before rising for the summer recess, passed a resolution urging the Ministry of Pensions to expedite its decisions as to the responsibility for the treatment of tuberculous ex-service cases, not only in new cases but also in cases at present receiving residential treatment, in which the Ministry has not yet decided that the tuberculous condition of the patient is attributable to or aggravated by war service. It was explained that in some 200 cases of tuberculous ex-service men at present under treatment for which the London County Council was responsible no decision had yet been made by the Ministry. It was agreed by the Council that if the Ministry decided, in any of the cases now undergoing treatment and training, that the tuberculous condition was not due to war service, the courses of treatment and training should be completed by the Council. The Council also decided not to include, as expenditure on the tuberculosis dispensary service, expenditure by the metropolitan borough councils on the provision of extra nourishment. A further decision taken on the same occasion was that in cases in which the income of an insured person accepted for residential treatment for tuberculosis was the main support of the family no assessment should be made for contribution towards the cost of such treatment.

Correspondence.

THE TEACHING OF BIOLOGY.

SIR,—The subject of the teaching of biology in schools is likely to come up for discussion in some form or other at the forthcoming meeting of the British Association in Edinburgh. Intimately bound up with this question is that of biology in relation to the medical curriculum. Should the subject be taught before or after the student has entered the medical school? What type of syllabus is most suitable for these students? Opinions are divided as to the answers to be given to these questions.

It seems to me that the time has arrived to redefine our conception of what should be included in the term "biology." In its widest sense nearly all the subjects included in the medical curriculum come within its scope. In the usual narrower application of the term it has come to mean an elementary knowledge of the facts of botany and zoology in their morphological aspects. A slight acquaintance with the general principles of structure and function is expected of the student. My experience as an examiner leads me to the conclusion that the latter is frequently ignored, attention being given only to the structural details of a few specified types. Such an elementary knowledge might well form part of a general education, and not for intending medical students alone, and as such could be taught in schools.

There is, however, a wider and more ill-defined aspect of the subject which might—and in my opinion should—be taught in the medical schools and presupposes the knowledge of elementary biology as above defined, and which might be termed "applied biology." As an indication of my meaning, mention may be made of such subjects as *tropisms*, *regeneration*, *immunity*, *parasitism*, and *heredity* (more particularly in relation to disease). It should be quite possible to evolve a really useful course, which need not of necessity be given at the commencement of the medical curriculum.

The question needs more space for detailed discussion than the medium of correspondence in your journal would allow, but I think it is a matter to which attention may well be given.—I am, etc.,

London, W., Aug. 22nd. H. W. MARETT TIMS.

HOSPITAL POLICY.

SIR,—I have read with surprise the debate on the Leicester motion at the Representative Meeting,[1] and am led to wonder how many representatives had discussed it with hospital committees or other laymen interested in hospital work. At the London meeting Mr. Eccles, who, to my astonishment in view of the recent appeal of St. Bartholomew's Hospital, supported this resolution, allowed that objection would be raised if the staff appropriated this money, and assured us that at St. Bartholomew's this was not done; yet others, who spoke on the same side, clearly expressed intention to do this very thing which he condemned. Now Dr. Brackenbury, in advocating the proposal, candidly allows that it will be bad for our profession, that we should be content with less, and that it will cast odium upon us. Assuredly it will, and that in no small measure, following so shortly on the lamentable failure to establish our 13s. 6d. claim before arbiters approved by ourselves. Was ever misguided resolution damned with more faint praise? The Leicester motion was wisely rejected by the staffs of Scottish hospitals; it was justly condemned as a positive menace to the voluntary system by the Cave Commission; yet it is to be forced upon us. What are we to do if our committees, rightly as I maintain, refuse this mercenary proposition? Are we to resign? Is it likely? Surely it is futile for the Association to impose what cannot be enforced. Are we not weary of "bluff" by now? To suggest what we do with our money is impertinence. Either it is our property, honestly earned, and no one has right to dictate or inquire what each individual does with his own, or it is not honestly earned. This resolution claims to be logical. If, indeed, we must exact toll upon every pittance towards mere maintenance paid voluntarily by patient or his relatives in cash, then logically we should demand share also in eggs, butter, potatoes, and the like paid similarly for maintenance in kind. As for the notion that societies will "manipulate" contributions, I think it unlikely that they will risk their funds, increase their work, and complicate their accounts by tricks calculated to conceal those contributions which it is to their interest to advertise at large. Yet, were such practices adopted, surely they could be frustrated when they actually occur. Shall we wreck the voluntary system, degrade the staffs of hospitals, and raise a storm of opposition among the laity, by gratuitous foreboding of such a bogey as this?

Having been present at the London meeting, I assert positively that undue influence was brought to bear in favour of this Leicester motion by the very strong lead given from the chair, that it was hurriedly and inadequately discussed, and, further, that the meeting was dominated by speakers, some of whom spoke repeatedly, from a few large industrial centres. The staffs of the county hospitals, whose views I believe to be accurately expressed by the Brighton amendment at the Representative Meeting, have never obtained sufficient hearing. I trust that others of these, more influential than myself, will now express opinion upon this humiliating and injurious resolution of Leicester, which we are told to commend to our committees.—I am, etc.,

Chichester, Aug. 20th. G. C. GARRATT.

[1] BRITISH MEDICAL JOURNAL, SUPPLEMENT, July 30th.

PREVENTION OF PUERPERAL INFECTION.

SIR,—May I be allowed to add one more letter on the above subject and to state that I agree with the writer in the BRITISH MEDICAL JOURNAL of August 6th (p. 220), on the impracticability of Dr. Bell's ideas in general practice? My experience of midwifery dates from early in 1867—my apprentice days—and I am still attending operative cases of midwifery although 74 years of age; during the period of fifty-four years I have attended 10,500 cases, as many as 7 in twenty-four hours; puerperal cases have been a rarity. I do not think, as far as my case-book shows, that I have had ten cases in this period, and most of these were in patients that had been in the hands of midwives for some hours, and my services were called in after the birth had taken place; of these cases three died, the remainder recovered.

My routine has always been strict cleanliness of hands, washing and disinfecting and scrubbing of nails, instruments boiled before and after using, vaginal examination reduced to a minimum; expression of placenta after birth. Ergot is given only in the third stage to ensure contraction. During the last ten years since midwives have been trained the use of chloroform is more in demand than in my earlier years, and is always given prior to delivery and instruments used before the patient has become exhausted. *Post-partum* haemorrhage has been a rarity. Although I have had all sorts of operative cases, from Caesarean section, embryotomy, craniotomies, eclampsia, etc., my maternal death rate has been exceptionally low. I have attended many cases suffering from scarlatina in a fever hospital and never lost one mother; also one in a small-pox hospital, where the mother was a patient with confluent small-pox, and both mother and child lived.

To sum up: My experience is to show that strict cleanliness will suffice even without rubber gloves and all the added paraphernalia of modern resources. Needless to say, the bulk of my cases have been amongst the working classes, but, on the other hand, I have attended many titled people.—I am, etc.,

August 9th. A GENERAL PRACTITIONER.

BIRTH CONTROL.

SIR,—It was with interest, after my return from a holiday, that I read the discussion on the subject of birth control. One fact which I think must be admitted by all is that the practice has become established to a very large extent in the educated classes, and will continue and extend. It is for the medical profession to decide whether it is better to give sound advice on the question or to allow people to continue to obtain advice from deleterious advertisements. If the advocates of unlimited propagation consider it an advantage they are right in advocating it, but they are not justified in trying to enforce it by claims that birth control methods are injurious to the woman's health. In my experience birth control has no ill effects, and does not promote either nervous disorders or sterility. Many of my patients restrict their families to the dimensions of their incomes, and when the latter has become capable of the greater burden have voluntarily increased the former. They are, in my opinion, the better and happier for doing so. It is far better for parents to have two or three children and to be able to bring them up well fed and well educated than to have an unlimited number which means constant deprivation. That appears to me to be the chief difference between the working classes and the middle classes at present. Dr. Turner makes a very true statement in saying that knowledge should be imparted to the poor and feeble. The upper classes know it already and benefit by the knowledge.

Dr. Sutherland objects to statements culled at random being used to support the argument for control, and then cites Ireland as more free from sterility than other countries where birth control is more in practice. He has no justification for this statement. I have just looked up all the cases admitted to this hospital this year from the rural districts, and out of 87 women admitted 33 were sterile. I have not got any statistics, but I very greatly doubt his statement that the infant mortality in the rural districts is so satisfactory or the large families of half-starved children so happy. The land of the small farmer is not capable of supporting many of the large families, with the result that many of the children are reared weaklings. The mothers are constantly occupied in the care of an infant, with the result that the elder children are nothing but drudges for the younger, and are largely deprived of the education which they should receive and all the parental care they should be entitled to.

One of the most potent causes of sterility is acquired venereal disease, and in my opinion this is largely promoted by the economic deferment of marriage. If young men felt that they could get married early and not incur the unlimited liability of a family, I believe there would be a marked reduction in the average age of marriage. My experience is that young married people do not try to avoid the first or second infants; they are, as a rule, only too pleased with them; but when the income is then taxed to its limit, without the sacrifice of the ordinary pleasures of life, the prospect of another child becomes a perpetual nightmare. It is the knowledge of many cases of too large families amongst their friends and the resultant distress that debars many young men and girls from getting married and running the same risk. Dr. Muspratt advocates the State support of superfluous families, the unmarried to be taxed for the purpose. Why should the unmarried not be encouraged to marry and have children of their own? I know numbers of cases of men and women who have never married because of the burden thrown on them by their less thrifty—or, rather, less considerate—brothers and sisters having uneconomic families. In many of these cases the unmarried ones are far the more fit for propagating the nation morally and physically. Is Dr. Muspratt such an admirer of the products, both morally and physically, of foundling schools that he would wish to have a nation of such? Personally, I would rather have one child brought up in decent home surroundings than ten foster school children. The love and human element of the home is absolutely essential to the nation, and in the present times of competition there is no more potent destroyer of this element in the home than the worry and anxiety of making ends meet owing to too large a family.

The moral effects of teaching birth control has been largely brought into the discussion. Some of the writers state that the practice amounts to prostituting the wife. Do they deny any desire on the part of a healthy, clean-minded woman for her mate? The statement that the teaching will induce undue indulgence is unjustified; if a man is such a moral degenerate as to be so affected it would be better for the nation to restrict his propagation or induce him to do so, for the fear of too large a family will not do so. Why not give the power to the wife? She probably cannot resist him otherwise. The same applies towards the sexually immoral women. Healthy home upbringing by parents able to devote themselves to the duty, unhampered by the worries and discomforts of a family too large for the income, will do more to prevent girls going astray than anything else. It is the loss of home control and influence that has increased the moral laxity of late years, and if a girl wants to find out about preventive methods there are plenty of people ready to give her all information. It is not to the medical profession or decent married people she will go for the information. Much of the present moral laxity arises from postponement of marriage owing to fear of the consequence, and this fear is justified by the experience of others who have married and then had families out of proportion to what they can ever expect to be their economic value. If young men and girls could look forward to getting married at an early age there would be a greater tendency for them to fix their affections early and to remain faithful to these affections prior to marriage, thus diminishing the incidence of venereal disease and the resultant disasters in late marriages. Many of the girls who at present go wrong in what may be called an amateurish way, do so from having their affections trifled with without any prospect of security of tenure. The young men play about without hope or prospect of marrying.—I am, etc.

GIBBON FITZGIBBON, M.D.

Rotunda Hospital, Dublin, Aug. 18th.

SIR,—I have no wish to evade Dr. Binnie Dunlop's statement that the world's food supply has always been increased so slowly that only a small percentage of couples in the world could get sufficient food for more than two or three children. My contention is that this doctrine of Malthus could only possibly apply to a closed country producing all its own necessities of life, and that it

cannot be applied to Great Britain or to any country open to commercial intercourse with the world. On the contrary, in Great Britain there has been not only an increase of population, but also an increased consumption of various foods per head of the population. This capacity for growth depends on the production of goods or of services required by other nations, and not on the actual food produced in Great Britain. Moreover, there is no evidence to prove that the available supply of food in the world either has not been or will not be increased to meet any demand that was made or is likely to arise. Within the British Empire alone between 1901 and 1911 there was an increase of 75 per cent. in the production of wheat. Lastly, as was shown over a generation ago by Prince Kiopotkin, if Britain was as well cultivated as is Flanders we could produce all, or nearly all, our own food.

Furthermore, there is no evidence whatsoever to prove that a high birth rate is of necessity associated with a high death rate. In China, where there is said to be a birth rate of over 50 per 1,000, and where over 70 per cent. of infants are helped to die, the high death rate is due to degraded social conditions. Among the French Canadians, where the average family numbers about nine, the high birth rate is associated not with a high death rate, but with the increase of a thrifty, hard-working race. In Ontario the birth rate went up from 21.1 in 1910 to 24.7 in 1911, and the death rate fell from 14 to 12.6. Again, in 1911 the standardized birth rate for Connaught was 45.3 as against 24.7 for Great Britain. At present I have not access to the respective death rates, but am safe in asserting that the infant mortality rate in Connaught is very much lower than in Great Britain. Among the poorest class in Great Britain a high fertility rate is associated with a high infant mortality rate, but it is surely obvious that a high infant mortality rate is not due to the numbers born, but to the numbers who do not survive owing to degraded social conditions. Now the neo-Malthusians hold that unrestricted reproduction inevitably leads to poverty and therefore to an increased mortality rate. This doctrine contains an obvious fallacy. It is not unrestricted reproduction but unrestricted survival that might possibly lead to pressure on subsistence. Consequently their argument comes to this—that unrestricted survival leads to an increased non-survival rate, which is contrary to reason. Moreover, a general correspondence between birth rates and death rates has never been established by statistical methods. In Great Britain, between 1838 and 1912, the birth rate and the death rate show a correlation of 0.84, but if that period be split into two the correlation from 1838 to 1876, when the birth rate was fluctuating, is *minus* 0.12, and in the period after 1876 the correlation is *plus* 0.92. That means that the whole of the positive correlation is due, as was shown by Dr. Major Greenwood,[1] to the falling of the death rate.—I am, etc.,

HALLIDAY SUTHERLAND.

Gorthleck, Inverness-shire, Aug. 13th.

SIR,—The persons advocating birth control in your columns have pointed out its various conveniences. Among these it is extolled as a substitute for prostitution, and I presume the writer might have added for venereal disease. Scientific achievement multiplies conveniences and contrivances as time goes on, and the tendency of the day is to set a standard of convenience as a standard for action; yet it is quite obvious that power for evil increases with knowledge, so that our profession cannot avoid examining the moral and psychic aspect of new experiments. By substituting contraception for the dangers and inconveniences of the streets, etc., the would-be offender introduces the prostitute into his own home. This may seem a hard saying, yet a woman's purity is surely something more than a label attached by legal sanction! It is obvious that, when marriage takes place early, contraception must be carried on continuously for years if it is to attain the end advocated; and herein lies the danger of that mutual loss of respect which has broken up so many homes and filled the divorce courts. We like to grant her the highest place who is an example of purity and whose womb bears the fruit of life naturally; while it is revolting to consider the whole of womanhood coming under the influence of such a practice.

[1] *The Declining Birth Rate*, 1916, p. 130.

In reviewing the arguments for contraception we find that they are strictly confined to the economic question, and centre round the advisability of early marriage for the male. The later marriages of the present day facilitate the intellectual and physical development of women, as they also limit the family to some extent; and they tend to produce a more intelligent type of offspring in those instances where the father is also healthy. Therefore the reasonably late marriage is favourable both to mother and child, while the disadvantages fall upon males who are unable to keep continent previous to marriage. This is the whole crux of the argument. No one can pretend that a numerous progeny is over-exhausting to a normal woman, though it may arrest her development in some directions; and every medical practitioner has experience of the hearty strong mother of sixteen children. I may repeat that the argument centres round the economic question, and the likelihood of the husband contracting venereal disease. This is a stupendous problem; but I venture to suggest that the psychic instability resulting from widespread degradation of marriage will be potent in ruining the national character. Can we expect an enduring edifice which has corruption at its base? Syphilis was not known in the days of the Roman Empire, in which times the degradation of minds and morals proved sufficient to overthrow the state without the aid of venereal disease. Vice deserves its name no less when it is carried out under the legal sanction of matrimony; and I would remind the reader of Mrs. Scharlieb's statement that "mankind is already oversexed." The practice of contraception strikes at womanhood, the fortress of our national character and strength, by whom the home will be polluted at its source.

Our arguments are not merely theoretical. We have the example of France before us, who, by the "law of August 1st, 1920," endeavoured to migitate the widespread evils that contraception had brought upon her people. All are aware of these evils, which have been obvious for many years. I do not speak only of the lack of fighting men, but of the national instability, lasting through a generation, and from which the valiant country is striving to free herself. Britain now proposes to follow a scheme that France found rotten and which her legislature seeks to abolish. It is futile to call a process "birth control" which results in limitation to a dangerous extent. Parents who understand contraception will restrict births to suit their own convenience, not that of the State, while the home becomes a centre of selfishness and something much worse, in which are sown seeds of disintegration and decay, whose harvest springs up in the sordid precincts of the divorce court, and where the blight of venereal disease is by no means wanting.—I am, etc.,

Dundee, Aug. 14th. FLORENCE E. INGLIS, M.B., Ch.B.

SIR,—If the deliberate limitation of the number of pregnancies in wedlock be bad morally or physically, or both, then any method, even continence, that produces this limitation must be condemned. If it be not bad but harmless and beneficial to individual or race, then there is urgent need for the widest advertisement of the best method for its production if this be known, and if not known for research and discussion to discover it. The best method must obviously be efficient to the end of preventing conception and causing no bodily, no mental harm to the individual, nor moral hurt to the community.

Two facts stand out clear and unassailable. Denial of coitus, from whatsoever cause, in marriage is often the cause of mental and physical distress and ill health; if this be not so, then much medical evidence given in open court is untrue, however sincere were the expert witnesses. Pain and exhaustion of mind added to bodily hurt are the frequent result of pregnancy oft repeated.

The profession of medicine, in discussing this question, can hardly forget that it, itself, has a birth rate, if not actually the lowest, certainly lower than that of almost all other sections of the community. We are not, probably, unusually sterile by nature, nor are our wives. We are not, certainly, unusually unhappy in marriage. We have not become unusually lustful, morally flabby; nor in ourselves, our families, and our social circles "psychically disintegrated." We may, of course, be unusually continent.—I am, etc.,

H. M. HANSCHELL, M.R.C.S., L.R.C.P.

London, E., Aug. 8th.

SIR,—Certain of your correspondents appear to regard any effort made by the human mind to control the rate of reproduction as a species of unnatural interference with the ordered course of Nature.

The basic fact, however, cannot be ignored that the human intellect is one of the highest, possibly the highest, of the directing forces evolved by and employed by Nature in her ceaseless struggle to promote mankind to ever higher stages of perfection and to diminish pain and suffering.

The factors which determine populousness are complex in the extreme, and as yet but dimly understood; certain well-defined laws can, however, be clearly established. Population can at no time exceed and survive the limit which the maximal possible sustenance produced either directly or indirectly by that population is capable of supporting. Immediately such margin is passed elimination of surplus necessarily takes place. An uncontrolled birth rate means that such surplus must be eliminated after birth by the cruel instruments of starvation, of disease, and, indeed of destruction at the hands of man himself. Nature, however, in her wonderful beneficence, has (within the past century) evolved through her highest product, the human mind, machinery whereby the production of surplus progeny may be checked or prevented, thus offering to mankind the means of emancipation from untold potential misery.

Through countless ages living things have been evolved towards greater perfection by the dual method of diminishing their fertility and increasing the periods between conception and birth and adolescence with consequent increased parental care. Fewer and fitter has been Nature's merciful maxim, thus ever lessening the necessity to eliminate the superfluous at the cost of infinite suffering. These facts, I suggest, should be given very full consideration by those who are inclined to advocate an uncontrolled birth rate; and, too, I would direct their attention to the present débâcle in the country having the highest birth rate in Europe. I doubt if the prolific peasants of that country can be classed among those who "are very much happier than the people of Great Britain."—I am, etc.,

London, Aug. 8th. C. CONYERS MORRELL.

*** We cannot continue this correspondence, but are prepared to print a correction of any matter of fact.

Obituary.

JAMES H. NICOLL, M.B., C.M.GLAS., F.R.F.P.S.GLAS.,

Legion of Honour, France.

PROBABLY no death in the medical profession in recent years has affected the profession and the general public in Glasgow and the West of Scotland with a sense of such acute personal loss as that of Mr. James H. Nicoll. It had been known that while in France in the summer of 1918 he had been infected with bacillary dysentery, and that since then, possibly because with pressure of work he did not undergo a rigid course of treatment, he had never quite regained his former vigorous health. But the news of his sudden death at his residence, Woodside Place, on August 15th, came as a real shock.

Nicoll, who was the son of the Rev. James Nicoll, M.A., a man of distinction as a clergyman and preacher in Glasgow, was born there fifty-seven years ago, and was educated at the Academy and Glasgow University, where he graduated in 1886. After holding the usual house appointments in the Western Infirmary he spent the next four years in surgical study in London and in various Continental schools, his *Wanderjahr* taking him as far afield as Moscow. He had quite clear-cut ideas as to his future line of work; on returning to Glasgow he joined the surgical staff of the Western Infirmary and became known as a rising surgeon. Promotion came to him rapidly, and in comparatively short time he became visiting surgeon to the Infirmary, surgeon to the Royal Hospital for Sick Children, as well as honorary consulting surgeon to other public institutions. He had but a short time to wait for private practice. Within a very few years he had built up a substantial position and reputation amongst practitioners as a surgeon of the highest diagnostic and technical skill, combined with real kindliness of heart and graciousness of manner and the debonair style of an accomplished man of the world. These qualities brought him many friends in commercial and artistic Glasgow who mourn his loss with a sincerity not less than those of his professional colleagues. In 1917 he resigned the surgeonship to the Western Infirmary—a severe blow to the teaching strength and personnel of the institution. Contrary to the usual experience, his private work increased rather than diminished, and his pleasure in it grew greater with the greater leisure.

In the surgical world beyond his own school Nicoll was probably best known for his work on congenital hypertrophic stenosis of the pylorus, which he was one of the first to describe and operate upon; on cranial depression in infants, which he wrote of in the *Glasgow Medical Journal* in 1901, describing an operation notable alike for its ease and efficiency; on haemorrhoids; on hare-lip and cleft palate; on prostatectomy and on pancreatitis, subjects on which he published several papers in the BRITISH MEDICAL JOURNAL. In the beginning of his surgical career his leanings were towards genito-urinary surgery—he invented an excellent modification of the Lister bougie and did much work in cystoscopy—but that speciality proved to be too limited. The immense expansion of the surgery of the abdomen in the last fifteen years presented him with an opportunity he was quick to appreciate, and he was at his death recognized in Scotland as an abdominal surgeon of first rank. He contributed many papers and demonstrations to the Royal Medico-Chirurgical Society of Glasgow, the latest being last winter, an able introduction to a debate on gastric and duodenal ulcer from the surgeon's point of view.

As a teacher of surgery Nicoll was one of the most popular in Glasgow. His classes in the Anderson College of Medicine (an extra-mural school in close proximity to the Western Infirmary) and his clinical classes in the Infirmary itself were always full of keen diligent men. His style was lucid, his diction graceful, his method pointed. He spent money lavishly on diagrams, specimens, lantern slides—on any means whereby he could make the subject of surgery plain.

Nicoll was a man of great public spirit. Ordinary politics he avoided, but in public work for the profession he delighted. As secretary of the Glasgow and West of Scotland Branch of the British Medical Association he rendered admirable service for several years and paved the way for the greater work of the Branch since the reorganization of the Association, and was vice-president of the Section of Surgery at the Annual Meeting at Leicester in 1905. He took an active part in management of various nursing institutions, and for two years, after resigning from the staff, he was a manager of the Western Infirmary. His latest public office—assessor on the Court of the University of Glasgow nominated by President Poincaré, Lord Rector of the University—was one which gave him the most elevated pleasure of all, as he held the post as representative of the students of the University. The award of the Cross of the Legion of Honour, conferred by M. Poincaré, was regarded by him as a recognition of his constituents rather than of himself.

Mr. Nicoll was unmarried, and so perhaps gave himself the more assiduously to his work. He could not bring himself to indulge in long holidays, nor did he play games or take part in sports. As a lover of nature he knew bird life well; as an admirer of art, his collection of etchings, especially those of his friend D. Y. Cameron, his bronzes and his paintings—the Hornels made a glorious display of colour—were a constant source of refreshment and delight; as a genial, hospitably disposed, generous-minded man he was popular in all circles. But we may well believe that those who will most regret his passing from amongst us will be the many men and women and little children to whom he was first the accomplished surgeon but soon discovered to be the forbearing, tactful, and kindly friend.

Dr. JAMES PATON BOYD (Glasgow) sends the following tribute to Mr. James H. Nicoll: I have known him intimately for thirty years. He was very human; ambitious, but in the best sense. He loved his work and the success it brought him, but he held the monetary rewards he reaped of no account. I never heard him mention the word "investment" during all these years. There are scores of medical men in the West of Scotland who could testify to his untiring labours on their behalf and their families. He was always very courteous to women, and little children loved him even if he had

unwillingly to cause them pain. He was deep down a sentimentalist, like my old friend Professor Samson Gemmell, though like him he would have cut off his hand rather than have shown it. He hated cant and dogma, but believed in the true essentials. He always dreaded a long illness, so he has died as he wished, and his memory will remain enshrined in the hearts of many patients and friends.

WILLIAM A. CASKIE, M.A., M.D., J.P., Glasgow.

By the death of William A. Caskie, M.A., M.D., J.P., which took place on June 2nd, the profession in Glasgow has lost one who was well known and greatly respected. After studying at Glasgow University, he graduated M.A. in 1871, M.B. and C.M. in 1876, and proceeded M.D. in 1883. Dr. Caskie, when he returned to settle in Glasgow, was already a man of ripe experience, which he had acquired during many years of practice in the coast town of Largs; and when he took part in the discussions at medical meetings he at once commanded the respectful attention of his hearers. He made no pretensions to brilliancy, but he was of that good type, the observant and reflective general practitioner, and his contributions to debate were characterized by the restraint in statement that shows the well-balanced mind. It was mainly, however, as secretary to the North-Western Division of the Glasgow and West of Scotland Branch of the British Medical Association that he made for himself a place in the grateful remembrance of the local profession. A colleague writes: "Dr. Caskie held office through the long, laborious days when the National Insurance Bill was under discussion and those no less arduous times of recruiting for the medical service of the army. Never did he complain of the heavy burden laid on him, and never did he give cause for complaint through work undone. When men's tempers were apt to be frayed in the conflict of opinion his patience and equanimity never failed. In recognition of the debt which the local profession owed him he was made the recipient of a material testimonial, but the debt remains undischarged, although not unacknowledged in the memory of those who know the real extent of it."

THE LATE DR. HERBERT CUFF.—An old colleague writes that probably the most striking piece of work accomplished by Dr. Herbert Cuff was the organization of the Alexandra Palace at a day's notice in September, 1914, as a huge camp for Belgian refugees; it had over 3,000 beds, and from October, 1914, to February, 1915, over 35,000 refugees of all ages and conditions passed through, including 1,900 refugees in one night from the wreck of the *Amiral Ganteaume* off Calais. Dr. Cuff's handling of this difficult work won great admiration, and for his services he was created an officer of the Order of the British Empire and an officer of the Order of the Crown of Belgium. At the funeral at Little Bookham on August 18th a large gathering of representatives of the Ministry of Health, the Metropolitan Asylums Board, Guy's Hospital, and other authorities and institutions assembled to pay a last tribute to one whose lovable personality will leave an abiding memory with all those with whom he came into contact.

The Services.

ARMY MEDICAL SERVICE.

A COMMUNICATION received from the War Office states that the sword for colonels, Army Medical Service, and officers of the Royal Army Medical Corps, will in future be of the pattern authorized for infantry. Officers in possession of the existing pattern sword may retain it in wear. The gorget patches worn by the Army Medical Service are now of dull cherry cloth.

HONOURS.

AMONG the recipients of rewards announced on August 10th for distinguished services in the field in Mesopotamia is Temporary Captain Ivor Ridge-Jones, R.A.M.C., attached 122nd Inf.I.A., who receives the Military Cross.

For conspicuous bravery and devotion to duty at Jubin on October 26th, 1920. During a five-hours' fight he displayed great coolness and daring in bringing back the wounded from the front line under heavy rifle and machine-gun fire. Throughout he set an excellent example, and it was due to his pluck and resource that all the wounded were retrieved.

The Shah of Persia has conferred the Order of the Lion and Sun of the second class upon Major (acting Lieut.-Colonel) A. Irvine Fortescue, D.S.O., R.A.M.C., for services rendered in dealing with a severe epidemic of typhus which occurred in a camp for Bolshevist prisoners of war at Shahr-i.-No, near Teheran.

The following are among the decorations conferred by the Allied Powers for distinguished services rendered during the war 1914–1919:

President of the United States.—*Distinguished Service Medal:* Surgeon Lieutenant Commander F. C. Alton, O.B.E., and Surgeon Lieutenant A. G. Bee.

King of the Belgians.—*Ordre de Leopold—Chevalier:* Temporary (honorary) Major Edward H. Hicks, R.A.M.C.

President of the French Republic.—*Croix de Guerre:* Colonel S. F. Clark, A.M.S., R. of O.

President of the Portuguese Republic.—*Red Cross Medal, 3rd Class Cruz Vermelha de Merito:* Major J. Utting, R.A.M.C.(T.F.).

Universities and Colleges.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE following appointments have been made in the Faculty of Medical Sciences at University College, London:

Senior Demonstrators in Anatomy: Mr. R. A. Dart and Mr. J. Shellshear.

Senior Lecturer in Histology: Dr. C. Da Fano.

Senior Assistant in Zoology: Dr. Elizabeth Fraser.

Assistant in Physiology: Mr. E. B. Verney.

Medical News.

SIR A. W. MAYO-ROBSON, K.B.E., C.B., has had conferred on him the distinction of Chevalier de la Légion d'Honneur for services rendered in France with the Croix Rouge Français during the war.

A POST-GRADUATE course will be given at the Radcliffe Infirmary, Oxford, from October 3rd to October 8th. The subjects for consideration will be introduced by various members of the staff, who will also give demonstrations daily. A limited number of those attending the course will be accommodated in rooms in Queen's College. Full particulars can be obtained from Mr. Hugh Whitelocke, M.B., B.Ch., 6, Banbury Road, Oxford.

AT the quarterly committee meeting of the Auxiliary Royal Army Medical Corps Funds, held on July 22nd, eleven grants were made to cases in the Benevolent Branch for the orphans of officers amounting to £474 15s. 4d., and five grants in the Relief Branch for widows and children of the rank and file amounting to £109. These funds are for the relief of widows and orphans of commissioned officers, non-commissioned officers, and men of the rank and file of the Royal Army Medical Corps, Special Reserve, Territorial Force, and New Armies, and also for the relief of the children of those who have been so severely damaged in the late war that they need help for the education of children. Requests for relief should be addressed to the honorary secretary at the offices of the Funds at 11, Chandos Street, Cavendish Square, W.1.

THE Wellcome Historical Medical Museum will be closed for cleaning and decorating from September 1st to September 30th inclusive.

A THREE months' course of lectures and demonstrations in hospital administration for the diploma in public health will be given by the medical superintendent (Dr. E. W. Goodall) at the North-Western Hospital, Lawn Road, Hampstead, on Tuesdays and Thursday, at 5 p.m., commencing on October 4th. The fee for the course is £3 3s. Further information can be obtained from the Clerk to the Metropolitan Asylums Board, E.C.4.

THE courses of lectures and demonstrations for sanitary officers, meat and food inspectors, and women health visitors and child welfare workers, at the Royal Sanitary Institute, will be opened on September 19th, when Professor H. R. Kenwood, C.M.G., M.B., will give an introductory lecture. Full particulars can be obtained from the Secretary, 90, Buckingham Palace Road, S.W.1.

THE Franco-Polish Medical Congress will be held next month. A two-day session at Posen is to be followed by a five-day session at Warsaw.

AN article giving particulars with regard to the Dangerous Drugs Regulations, which come into force on September 1st, is printed in the SUPPLEMENT for this week. The *Chemist and Druggist* has published a card (1s.) for the use of pharmacists; in addition to particulars of such parts of the regulations as are of most importance to them, it gives a table showing the percentage of the various drugs to which the Act applies in various official and unofficial preparations.

THE Departmental Committee appointed by the Minister of Health to investigate the causes and prevention of blindness, of which the Right Hon. G. H. Roberts is chairman, has issued an interim report on the injuries to the sight of performers alleged to be due to the powerful lights used for the production of films in kinematograph studios. The committee traces the trouble to the use of open arc lights without diffusing screens, but finds that the deleterious effects have not been permanent. Unscreened arcs are not only unnecessary, but give less satisfactory photographic results, and the Incorporated Association of Kinematograph Manufacturers has given an undertaking that its members will not permit the use of open arc lights without filters in their studios. The committee points out that the industry is in a state of development, and that research is needed as to the best types of lamp.

A MEDICAL congress on balneotherapy, presided over by Dr. Roger Bolay, is to be held on October 8th and 9th at Yverdon-les-Bains, that pleasant little Swiss spa which is situated at the lower end of the Lake of Neuchâtel.

ON the occasion of his retirement from the superintendentship of Bellefield Sanatorium, Dr. James W. Allan has been presented by the staff of the Public Health Department of the Glasgow Corporation with a silver rose bowl in recognition of his work in the department.

MESSRS. W. HEFFER AND SONS, LTD., Cambridge, have in the press a volume entitled *The Autonomic Nervous System*, Part I, by Dr. J. N. Langley, F.R.S., Professor of Physiology in the University of Cambridge. It is the first part of a study of the sympathetic and allied nervous systems grouped together as the autonomic system. It gives an historical account of the various terms which have been used in describing the system, the place of origin and of peripheral distribution of its parts, and the common character of its nerve fibres. It treats of the action of drugs in relation to the sympathetic and parasympathetic subdivisions of the autonomic system, taking adrenaline and pilocarpine as types of the drugs which have a preferential action on these subdivisions, and discusses the various theories to which the preferential action has given rise. The tissues innervated are then dealt with; this section includes a discussion of the innervation by autonomic nerves of pigment cells, capillaries and striated muscle.

IT is reported that Professor Tcherbak, director of the physio-therapeutic institute at Sebastopol, has been shot by the Bolshevists for having had the wounded soldiers of the voluntary army nursed in the institute.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediscra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin:* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

"W. J. C." asks: (1) Is the inspector of taxes right in refusing to allow for "depreciation" of motor car? and (2) a Maxwell four-seater costing £250, sold for £200, and two-seater Calcott costing £550, purchased in replacement, what is the appropriate allowance?

*** (1) Yes; this probably accidental and undoubtedly unfair discrimination between a "trade" and a "profession" was represented to the Royal Commission, and its abolition was recommended in their report. (2) Apparently the Maxwell was purchased second-hand, in which case "W. J. C." has undoubtedly improved his professional equipment, and the improvement represents capital and not current expenditure. The amount deductible must be limited to £x – £200, £x being the cost, as at the date the Calcott was purchased of a second-hand four-seater Maxwell in a condition similar to that in which the old Maxwell was purchased.

"M. M. K." inquires whether he can deduct for tax purposes (1) £350 expended in connexion with a proposed purchase of a practice, the proposal having fallen through; and (2) sums paid, not under legal obligation, annually towards the support of a relative who advanced money for his education.

*** No. "M. M. K." is in practice, and can deduct from his professional receipts only expenses incurred in carrying on the practice. (2) If our correspondent is in fact paying interest, he is rightly assessed at 6s. in the £ on the amount thereof, because on that assumption he is entitled to deduct tax at that rate from the interest, leaving the relative to reclaim the whole or such portion as is returnable. But the facts as stated rather suggest that there is no real payment of interest, in which case the tax cannot be deducted, and the rate of 6s. may or may not be right, according to the amount of our correspondent's income.

"A. V. D." has sold his practice with a twelvemonths' introduction, but does not wish the fact to be known. The "partner" has been asked by the local inspector of taxes whether he has bought the practice and, if so, how much he has paid for it. Can this information be required?

*** We think that the local official is reasonably entitled to know in what capacity the declaration of profits is made, but should demur to the request for a statement of the purchase price. On the legal aspect, the inspector is not entitled to the information, but he has the right of objecting to the amount returned for assessment, and on an appeal against an assessment made the commissioners for the district may call for such information as they think fit. Whether they would demand to know the purchase price may be doubted.

LETTERS, NOTES, ETC.

ASTHMA AND ALLIED DISORDERS.

"M.D. 1920" writes with reference to the report of the address by Sir H. Rolleston and discussion by others on asthma and allied disorders.

It would be interesting to learn how long Sir H. Rolleston spent in gathering his facts; it would be more interesting to learn on how many patients a day he would be able to carry out his hundred and one skin reactions with proteins; it would be most interesting to discover how he proposes to juggle with the proteins which, in treatment, he suggests his patients should avoid. It is another triumph for Sir James Mackenzie's recent efforts to put symptomatology on a firm basis that the old recorders of symptoms said in simple words simply what to-day is shrouded in technical terms and a mass of figures. The doctors of the last century did no skin reactions, and yet were successful in treating—say urticaria—by advising the avoidance of strawberries or some article of food that disagreed. They likewise considered such points as occupation and environment in the treatment of asthma. When one considers the admitted psychical causes of these conditions one wonders why there is all this "pudder of the elements" over "sensitization" (a most unhappy term). This letter is meant in no way to detract from the eminence of the speakers, which I admire and respect; it is only the feeble cry of one young in medicine whose infant knowledge is daily being strangled by this rank growth of research.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 26, 27, 30, 31, 32, and 33 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 28, 29, and 30.

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